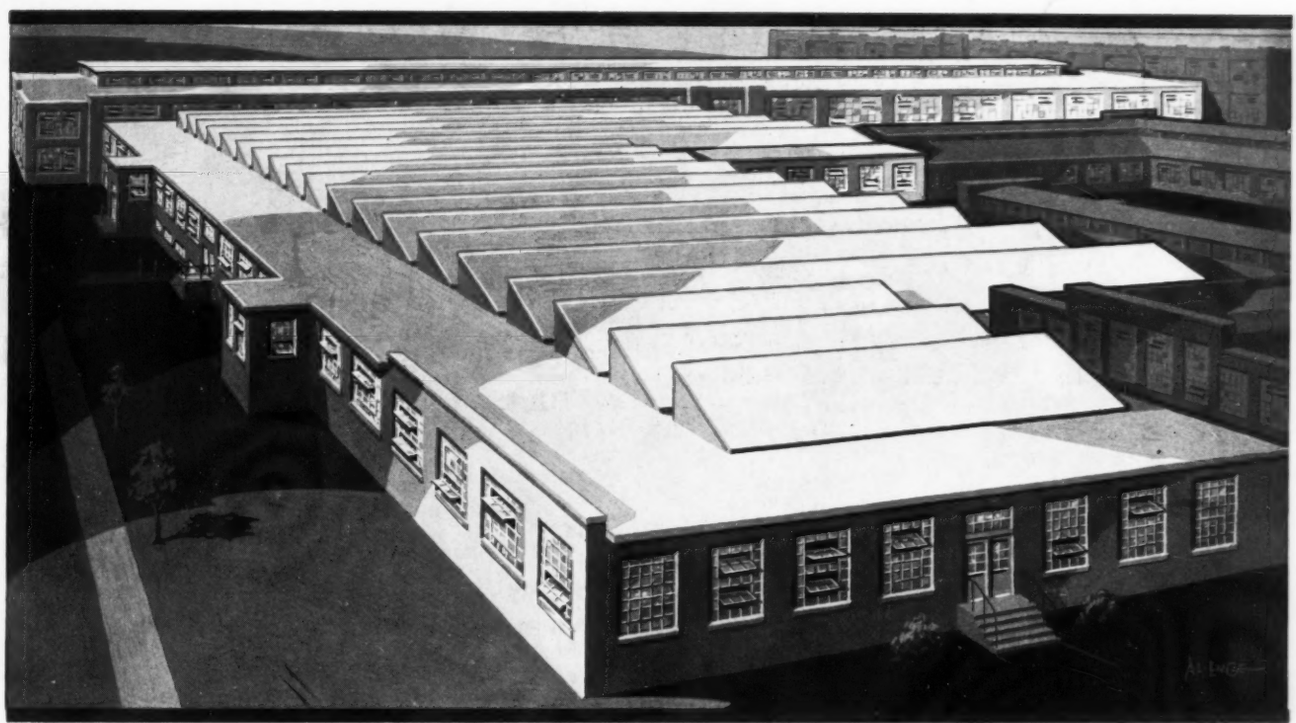
COTTON



PERIODICAL DIVISION

KEEPING PACE *with the* DEMAND *for* WOOLENS

TO keep pace with the steadily increasing demand for their goods, Peerless Woolen Mills, Rossville, Georgia, one of the largest producers of woolen fabrics in this country, wanted straight-line production and increased capacity.

The expansion program now under way was especially interesting because of the necessity to complete the project without material loss of production.

Our engineering experience over a long period has given us the ability to cope with virtually every conceivable problem in the field, and the facilities to approach any technical problem with confidence.

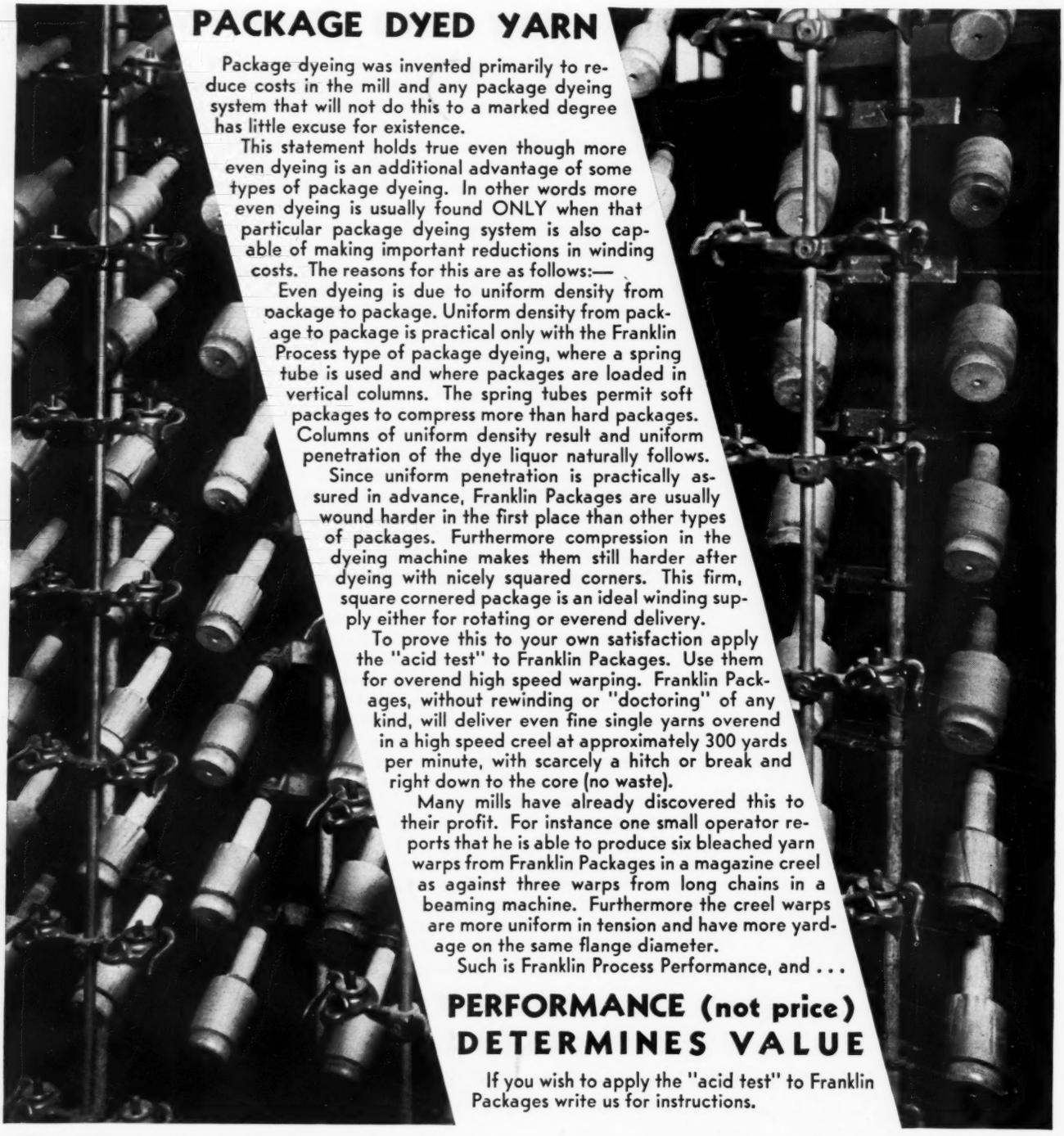
ROBERT AND COMPANY

ATLANTA INCORPORATED GEORGIA

Architects and Engineers

TS1550
.C8

APPLY THIS "Acid Test" TO YOUR PACKAGE DYED YARN



Package dyeing was invented primarily to reduce costs in the mill and any package dyeing system that will not do this to a marked degree has little excuse for existence.

This statement holds true even though more even dyeing is an additional advantage of some types of package dyeing. In other words more even dyeing is usually found ONLY when that particular package dyeing system is also capable of making important reductions in winding costs. The reasons for this are as follows:—

Even dyeing is due to uniform density from package to package. Uniform density from package to package is practical only with the Franklin Process type of package dyeing, where a spring tube is used and where packages are loaded in vertical columns. The spring tubes permit soft packages to compress more than hard packages. Columns of uniform density result and uniform penetration of the dye liquor naturally follows.

Since uniform penetration is practically assured in advance, Franklin Packages are usually wound harder in the first place than other types of packages. Furthermore compression in the dyeing machine makes them still harder after dyeing with nicely squared corners. This firm, square cornered package is an ideal winding supply either for rotating or everend delivery.

To prove this to your own satisfaction apply the "acid test" to Franklin Packages. Use them for overend high speed warping. Franklin Packages, without rewinding or "doctoring" of any kind, will deliver even fine single yarns overend in a high speed creel at approximately 300 yards per minute, with scarcely a hitch or break and right down to the core (no waste).

Many mills have already discovered this to their profit. For instance one small operator reports that he is able to produce six bleached yarn warps from Franklin Packages in a magazine creel as against three warps from long chains in a beaming machine. Furthermore the creel warps are more uniform in tension and have more yardage on the same flange diameter.

Such is Franklin Process Performance, and . . .

PERFORMANCE (not price) DETERMINES VALUE

If you wish to apply the "acid test" to Franklin Packages write us for instructions.

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • N. Y. REPRESENTATIVE, 40 WORTH ST.

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Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

THEY PASSED AWAY

Once Mastodons and Mammoths and Huge Dinosaurs roamed the Earth lords of all they surveyed ✣ ✣ ✣ They exist today only in Bones they left to tell an inquisitive modern world the tale of their once Mighty Bodies

They Passed Away ✣ Their Mighty Bodies were not Equipped to Meet Changing World Conditions

Haile Selassie Ruled Ethiopia from the Throne occupied by his Ancestors since the days of King Solomon

His Power is Gone and He is a Fugitive with neither Throne nor Home ✣ He was Not Equipped for Modern Conditions of Warfare

Haile Selassie Might Have Been Equipped with Tanks and Airplanes and Poison Gas
He Wasn't ✣ and ✣ Had No Chance to Win

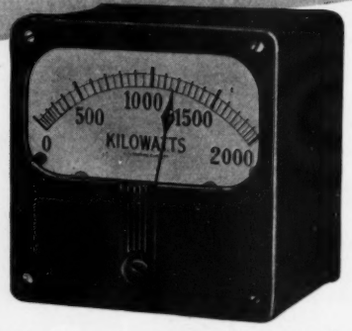
What Is the Equipment of Your Mill?
Modern High Speed Looms Can Help You ✣ IF ✣
IF They Are in Your Mill

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

THE DAY YOU START DOING THIS

Power Consumption *drops*



On the wattmeters in the power house is where starting and running torque may be checked . . . Here's where power savings prove the high quality of Starfak.

YOU can get much lower starting and running torque; lower power bills—once you put your anti-friction bearings on Texaco STARFAK Grease.

Especially developed for use in anti-friction bearings, Starfak is the perfected result of intensive laboratory and field research, and of working closely with the bearing-makers themselves.

Even after months of constant use in a bearing, you will find Starfak stable and gum-free.

Greases that become spongy, that oxidize, separate, and break down under heat and speed, can't let the bearings make good in today's hard service.

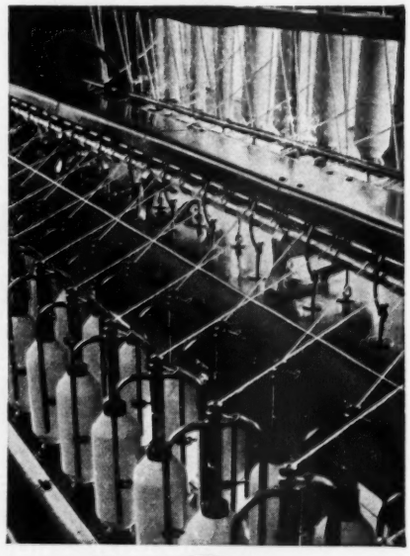
By using Texaco STARFAK—you'll get all the service these modern power-savers are capable of providing.

A Texaco representative will be glad to provide practical engineering service to prove the economies of Texaco Products.

☆ ☆ ☆

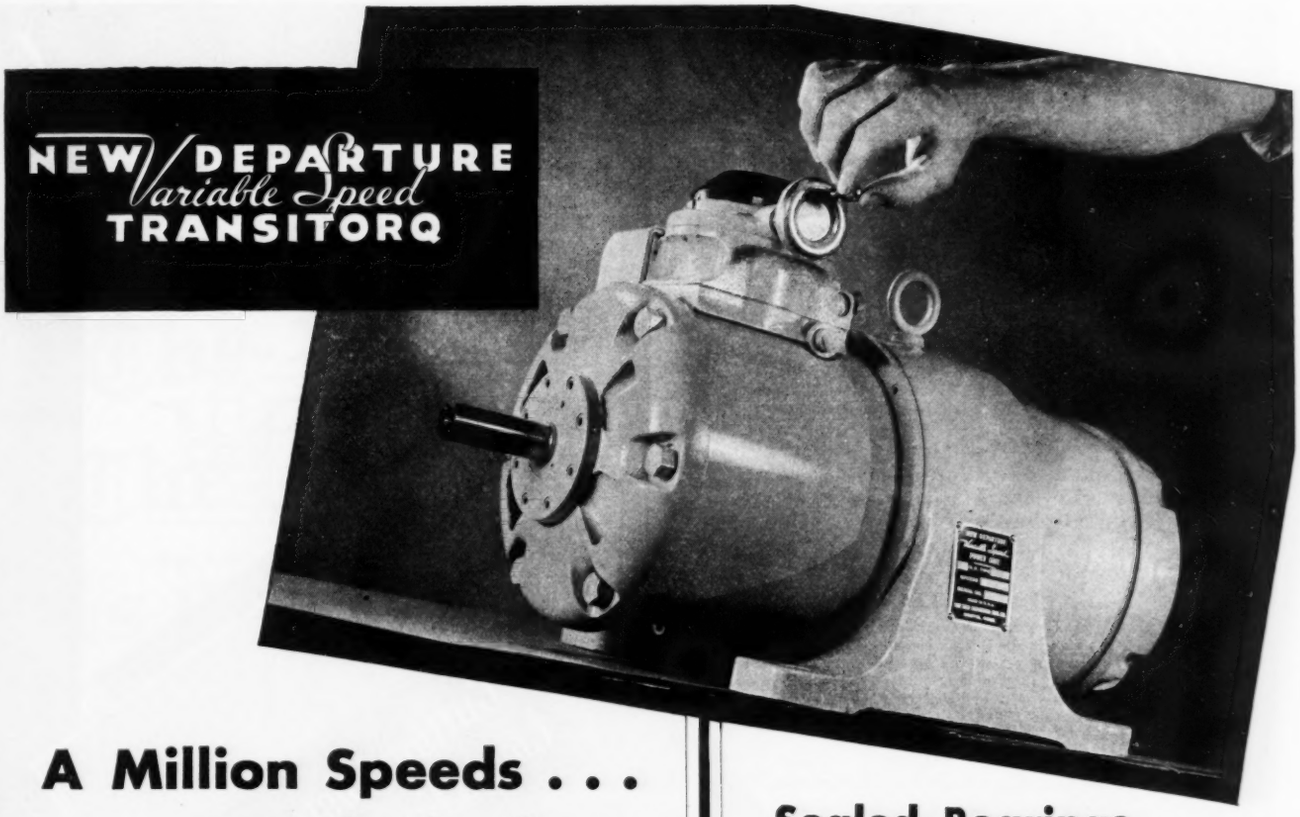
THE TEXAS COMPANY
135 East 42nd St., New York City

Nation-wide distribution facilities assure prompt delivery



TEXACO

TEXACO *Industrial Lubricants*



A Million Speeds . . .

at touch of a finger

Compact, complete
Motor, variable speed transmission and control all in one symmetrical unit.

Any speed, instantly, accurately
May be selected while stationary or adjusted while running.

Positive drive
Under all load conditions, at all speeds. No uncertainty. No guesswork.

Controls of every type
Direct or remote — by temperature, light beam, time periods — full automatic or fingertip control.

Universal mount
Horizontal or vertical — sidewall, ceiling or floor. Easily built into any machine.

The smooth quiet of fine balance
Symmetrical parts in perfectly controlled rolling motion.

Long lived, rugged, highly efficient
Ball bearing science, workmanship and experience applied to the transmission of power.

For more information, ask for Booklet PC
The New Departure Manufacturing Company, *Division of General Motors Corporation*, Bristol, Connecticut.

Sealed Bearings

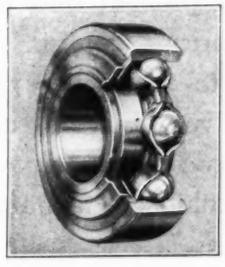
. . . that keep lubricant from ruining your product

Of special interest to makers of machines for processing foodstuffs and textiles are these self-sealed ball bearings — a type originated by New Departure. Some are sealed on *both sides* and "lubricated for life." More information on request.

FREE TO DESIGNERS

"Bearing Load Computation" is the title of a booklet which gives by perspective diagrams and convenient tables all that any printed book can give you on this very important subject. Ask for Booklet LC, stating where you saw this announcement.

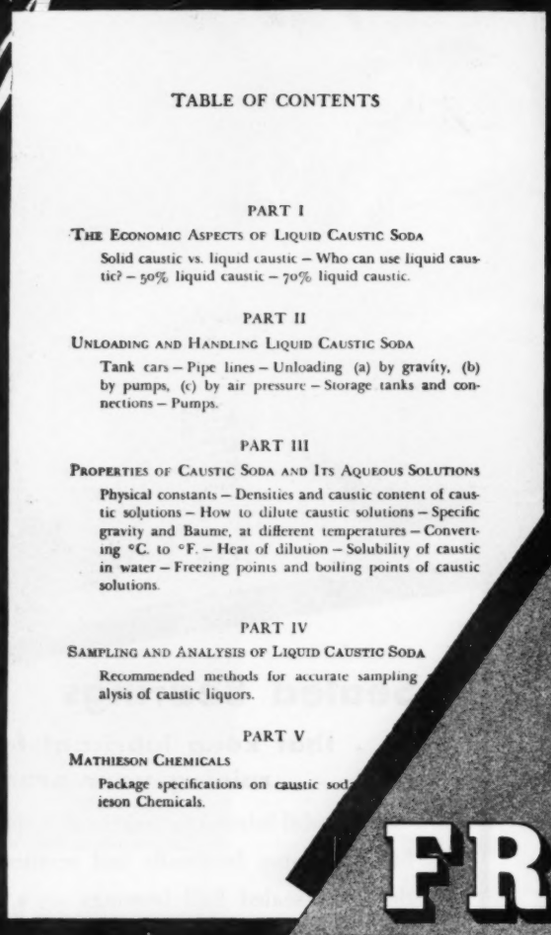
NEW DEPARTURE



N-D-SEAL BALL BEARINGS

2407-P

Just Published — SEND FOR IT!



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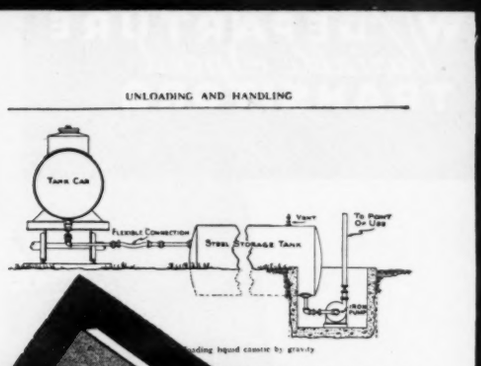


ol-formaldehyde type and hard
tic and are not suitable for
ervice at tempera-

Cutting Costs with Liquid Caustic Soda

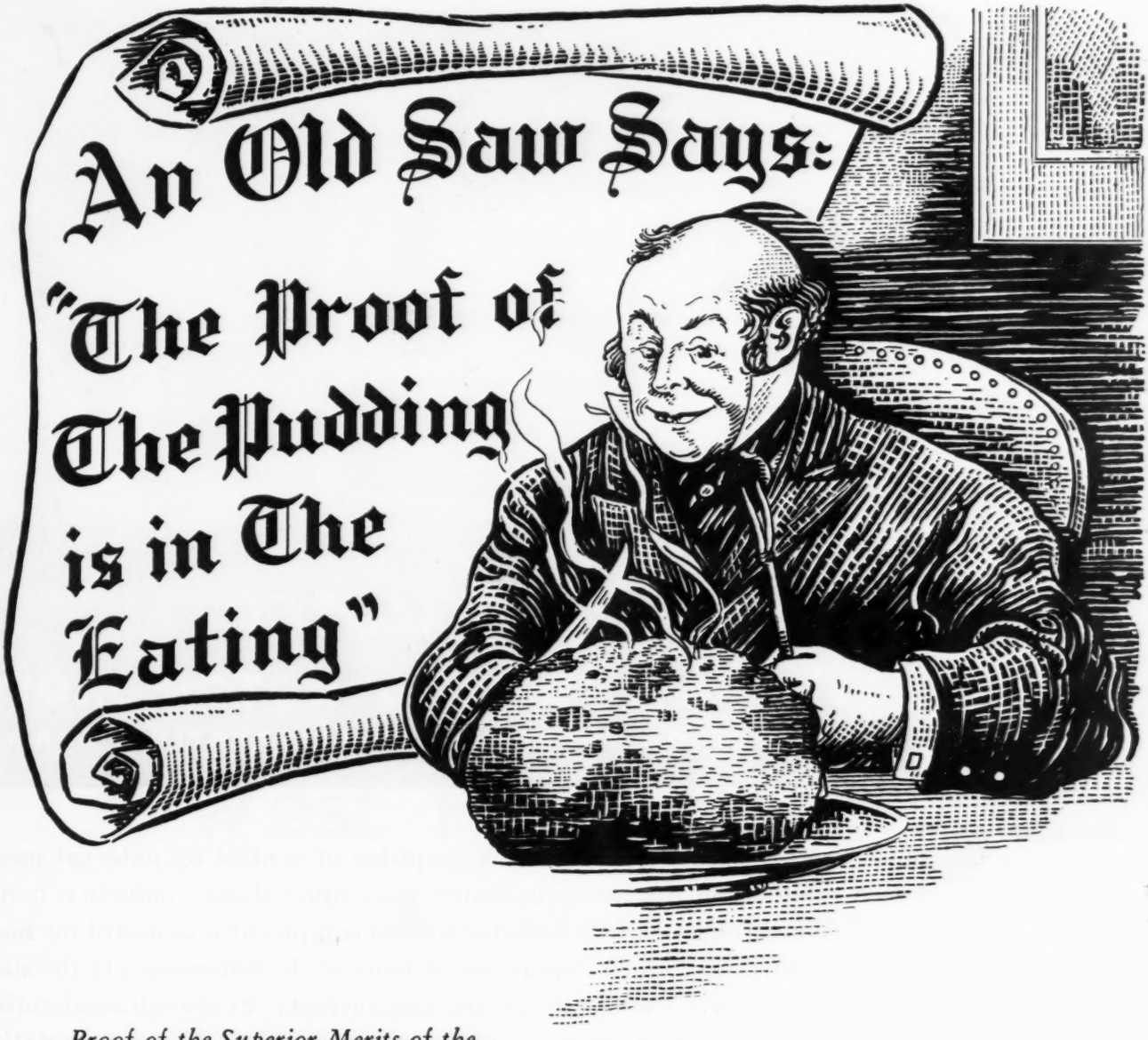
FREE TO PLANT EXECUTIVES AND TECHNICAL MEN

The Table of Contents page, reproduced above, gives an idea of how comprehensive is the data in this new 72 page handbook.

HERE'S a real handbook on liquid caustic soda, packed full of useful information for both present and potential consumers. Its 72 pages contain material of practical value to the entire plant organization — executives, buyers, chemists, operating men—based upon the wide experience of the Mathieson technical staff and upon data gathered from authoritative reference sources. Anyone interested in the use of liquid caustic soda may obtain this book without obligation by writing to us on his business letterhead.

Send today for your copy of "Cutting Costs with Liquid Caustic Soda."

The MATHIESON ALKALI WORKS (Inc.), 60 East 42nd St., New York, N. Y.



Proof of the Superior Merits of the

WHITIN-CASABLANCAS SYSTEM OF LONG DRAFT:

More Spinning and Roving Frames have been equipped with Whitin-Casablancas during the last six months than with *all other systems combined.*

The Casablancas System is the most widely known, the most generally used, of all the better drafting methods throughout the entire world.

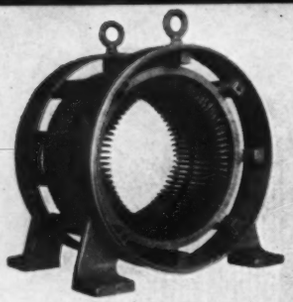
The "Heart of the Casablancas System" is the combined use of the double apron and patented supporting cradle, which serve to control all long and short fibres through the drafting process *as no other method can do.*

It produces stronger and evener yarns, with fewer ends down per hour, and is more easily kept clean.

WHITIN MACHINE WORKS

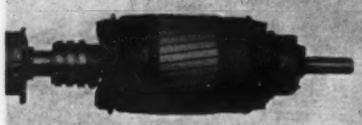
Whitinsville, Mass., U. S. A.

Charlotte, N. C. Atlanta, Ga.

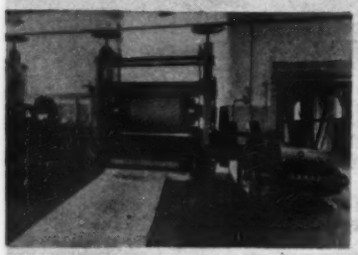


Bar-steel frames, electrically welded, provide a substantial enclosure for the stator core. There's a lot of strength to stand jolts and overloads.

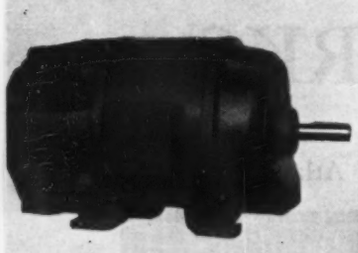
Stator windings are effectively protected by the Reliance "Duraseal" Insulation Process to put up greater than usual resistance against dust, moisture and fumes.



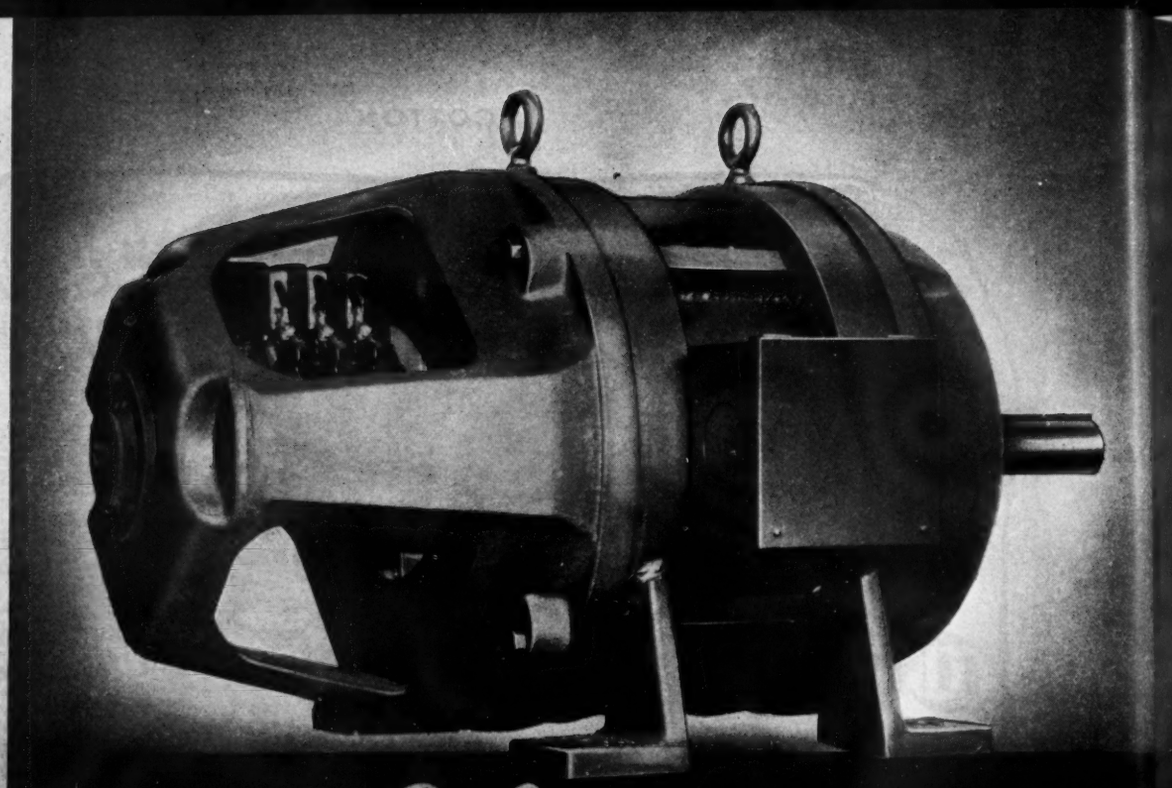
Besides careful slot insulation, the completed rotor is given the same "Duraseal" protective treatment as the stator. This thorough treatment is used even for the lower voltages.



Wound-rotor motors are used to obtain a 2-to-1 speed variation on these Perkins four-roll lever-roll calenders.



Splash-proof Type "AW" Wound-rotor Motor.



Reliance

TYPE "AW" WOUND-ROTOR MOTOR

FOR TWO- OR THREE-PHASE ALTERNATING CURRENT

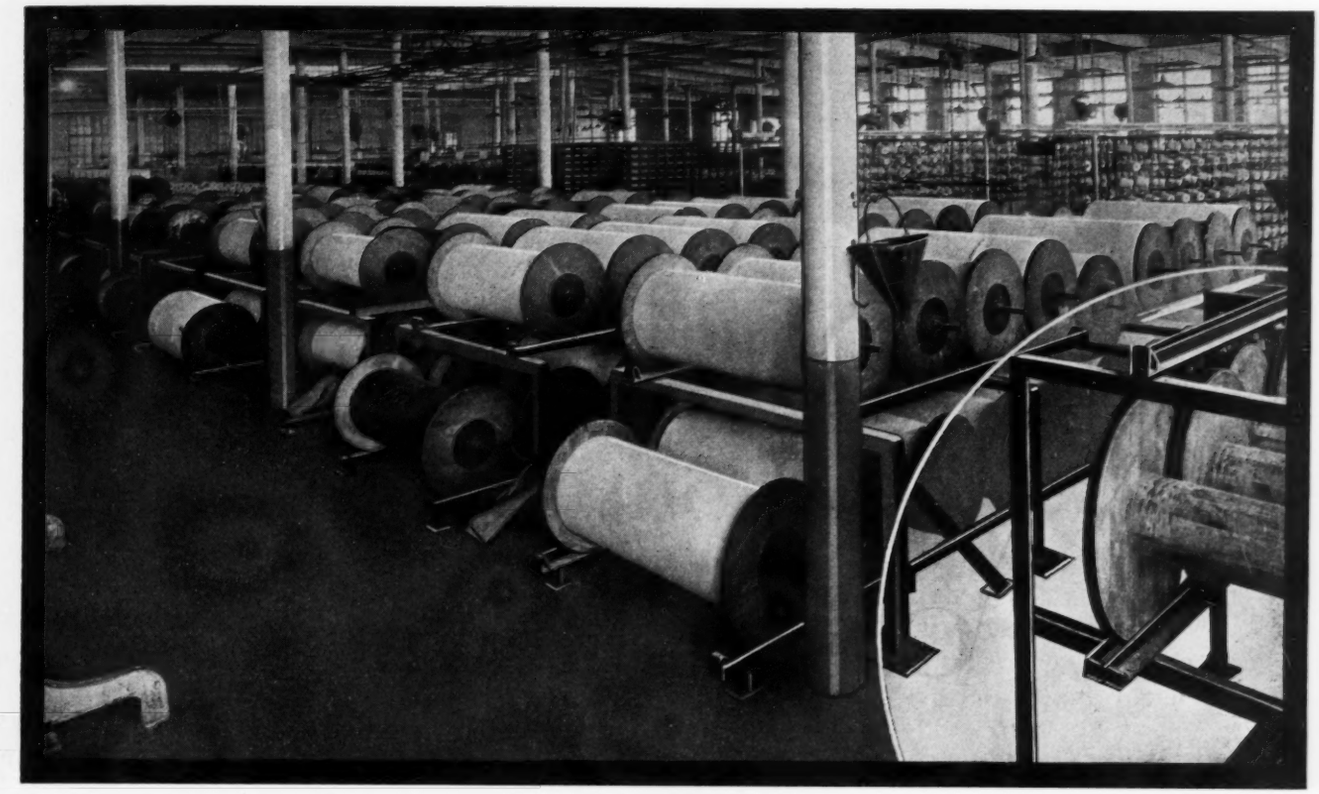
This motor is more susceptible of control by external means than the more commonly used squirrel-cage induction motor. When combined with suitable control equipment it is useful for many applications which require one or more of the following: (1) the starting of heavy loads with low starting current; (2) smooth acceleration; (3) frequent starting, stopping or reversing; (4) speed variation. Typical applications are hoists, conveyors, ventilating fans, calenders . . . Reliance puts into these motors all that is essential to meet the demands of hard, continuous service. Of further importance is a helpful Engineering Service to aid in determining where, when and how to apply, and to make certain that you profit from any possibilities for keeping down first costs, simplifying equipment, and reducing maintenance. Write us if you have applications requiring special consideration as to torque, frequency of starting, quick stopping, acceleration, reversing or speed control. Ask, too, for Bulletin 117.

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 Ivanhoe Road — Cleveland, Ohio

Branches: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Detroit, New York, Philadelphia, Pittsburgh.

Representatives in other principal cities.

RELIANCE A-C D-C MOTORS



West Point Beam Racks

An Ideal Parking Place!!

Here's a beam rack installation that provides an excellent parking place for Warper Beams.

Note the orderly arrangement of the Beams, as shown in the illustration! With a chain hoist and overhead track a set is soon in place on the slasher.

The double track rack on the extreme right is for empty beam storage. Also note this in the photograph.

Bring order to **your** Slasher Room! Let us design and install beam racks to take care of your Warper Beams.

Oh, Yes, — We also design and build racks for Loom Beam Storage!

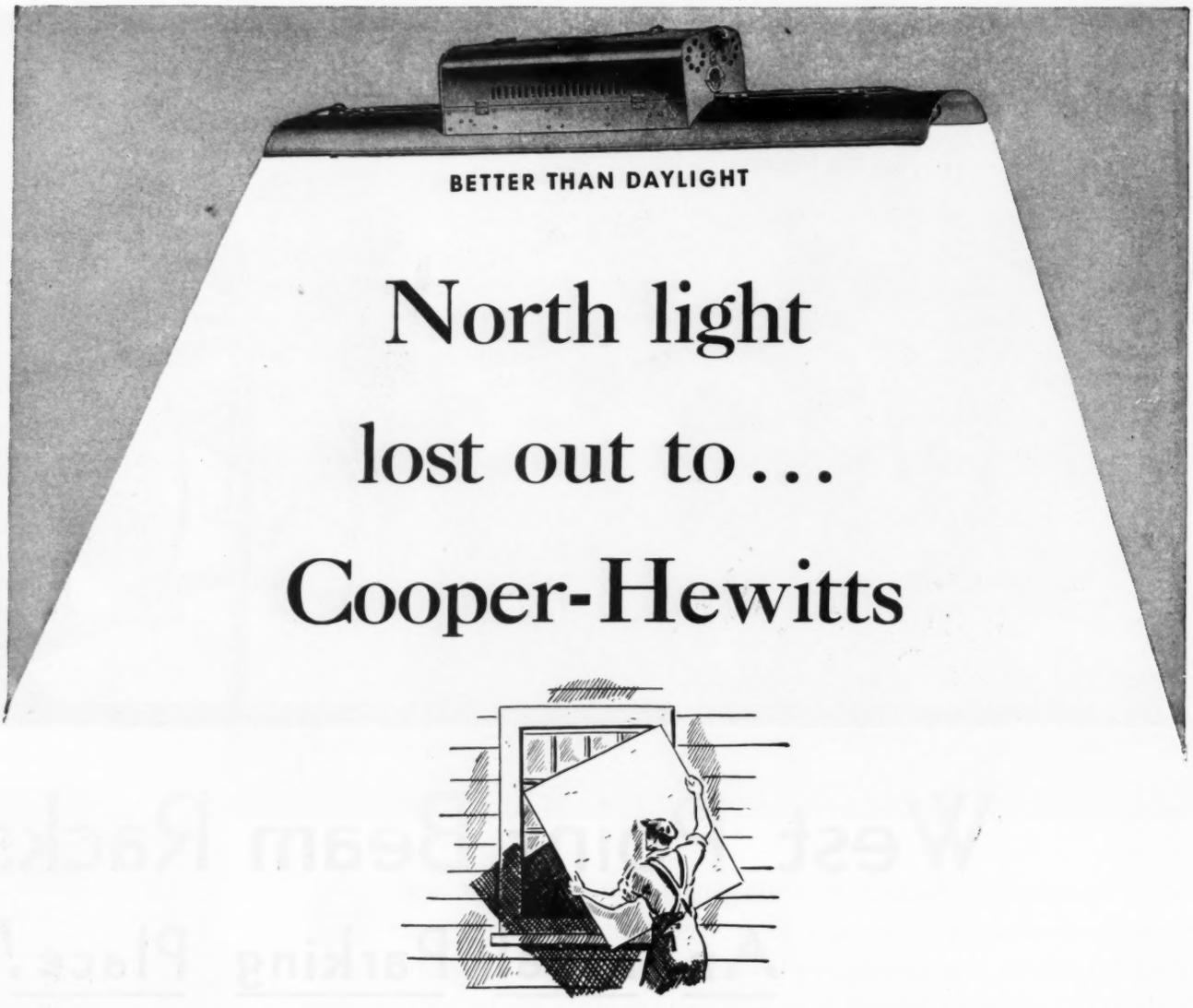
May we know your requirements for something similar?

We are also manufacturers of special machinery, cloth room machinery, textile machinery repair parts and gears.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA



BETTER THAN DAYLIGHT

North light lost out to... Cooper-Hewitts

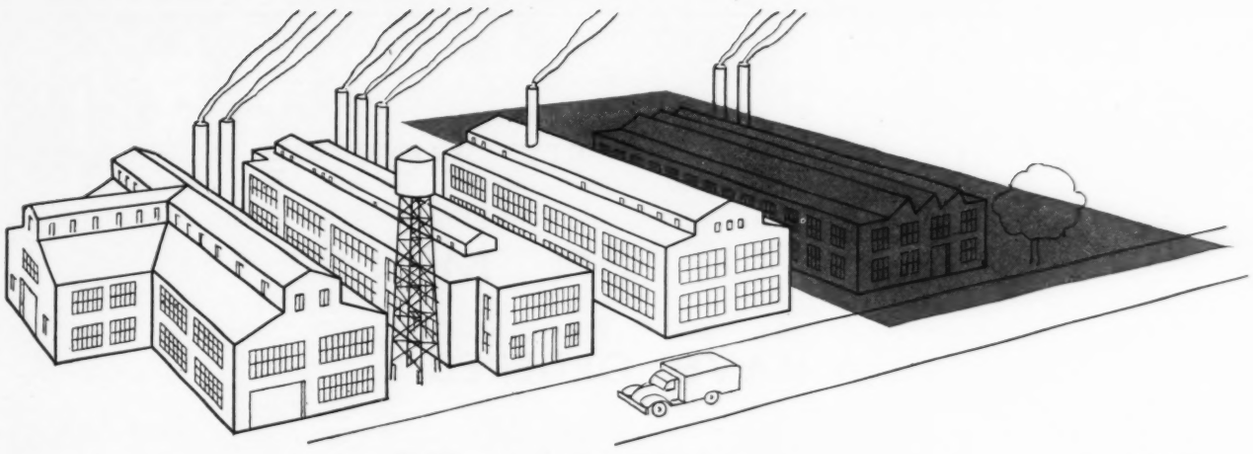
All the windows on the north wall of a certain textile mill were boarded up after a trial installation of Cooper-Hewitt Mercury Vapor Lighting had conclusively proved to the management the Cooper-Hewitt system was "better than daylight." This detail-revealing light disclosed defects which had formerly escaped notice. Workers became aware of the elimination of eye-fatigue, and rejects were cut down materially.

Under Cooper-Hewitt Lighting every thread stands out in bold relief. Closer and faster loom adjustment is made possible under this glareless light, which produces good vision down in the harness of a loom. There are no dark shadows. More economical production and lower labor turnover — two direct results of the use of Cooper-Hewitt Mercury Vapor Light — are reflected in greater profits. For complete information write to the General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, N. J.

GENERAL ELECTRIC VAPOR LAMP COMPANY

686C

COOPER-HEWITT MERCURY VAPOR LIGHT



What Would Happen on the Street of the 4 Mills?

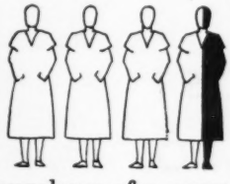
If, on a single street, there stood four mills that were operating on slow speed spooling . . . three of those four would receive their greatest net return from high speed warping by investing in the Universal System.

Why?

Because it is the lowest-priced high speed system and has the lowest depreciation cost over the entire life of machines.

Because maintenance cost is minimum ($50 a year on $10,000). No special skilled mechanic needed. Also, it has the lowest power cost.

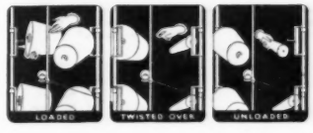
Because these savings and the saving in other fixed charges, which are included in the total cost of manufacturing, offset any additional direct labor savings made by other systems.



Because the Universal System's smaller warping units can be made to fit the mill's production. There are fewer cases where the mill's requirement will work out to a fractional unit, necessitating the purchase of a complete unit for part time production. For example, a mill that requires 1½ units must purchase 2 units, and the same applies to the operators of those units.

Because the large 4-lb cone, when compared with small 1-lb. spools, results in a 75% saving in the cost of creeling and trucking.

Because the Universal Winder is flexible enough to handle any build of spinning bobbin—filling, combination or warp wind—and there is no cost of spinning-room changeover.



Because the extra cone holder for each end in the warping creel allows changing yarn counts while the warper is running and without knot-tying—and makes the entire system far more practical for those mills whose yarn counts are continually changing.

Because it is a system for the automatic inspection of yarn and, as such, produces a number of weave room savings as well as insuring high quality weaving.

To any mill now doing slow speed warping, the Universal System offers a 25%-75% net return on investment. To 3 out of 4 of these mills, it offers more net return than any other high speed system.

UNIVERSAL WINDING COMPANY

IN 3 OUT OF 4—MORE NET RETURN

BOSTON PROVIDENCE NEW YORK UTICA
SPRINGFIELD CHARLOTTE ATLANTA

2527

IN THE PAST SIX MONTHS

27 COTTON MILLS

HAVE ORDERED

109 LINES OF

ALDRICH

SYNCHRONIZED SINGLE PROCESS PICKING.

OF THESE,

37 LINES IN 8 MILLS

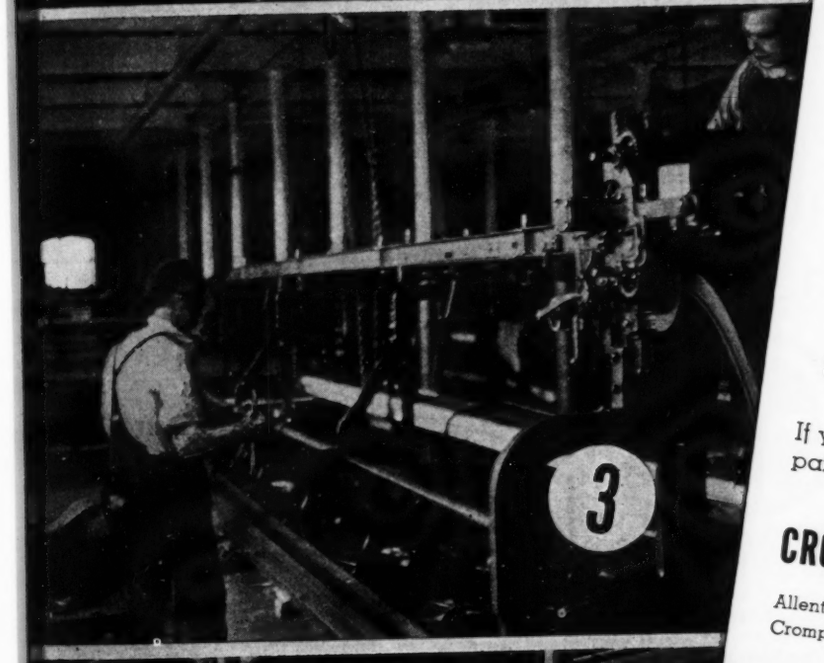
WERE TO REPLACE UNSATISFACTORY SINGLE PROCESS PICKING EQUIPMENT ALREADY IN USE.

WE CONSIDER THIS THE MOST ELOQUENT POSSIBLE TESTIMONY TO THE RECOGNIZED SUPERIORITY OF THE ALDRICH SYSTEM.

AldricH MachinE WorkS

Greenwood, South Carolina

STEPCHILDREN?



These looms are not stepchildren with us. The building of special looms for special purposes is definitely a part of our business . . . These are a few special looms that happen to be going through our plant now.

1. **46″ 4 harness 1 x 1 Non-automatic Flat Duck Looms. To be run in a state prison.**
2. **98″ C4, Jacquard, 2 x 1 box, bobbin changing Rayon Bedspread Loom.**
3. **48 circular shuttle 4⅔″ center—1⅝″ space, 12 harness 8/10″ Webbing Loom with fan reed to weave shirt neckbands. 24 feet over all.**
4. **12/4 3 cam harness, 1 x 1, Axminster Loom. Weaves carpet 9 feet wide.**
5. **50″ 18 harness, cam, 2 x 2, special Double Shuttle Velvet Looms.**

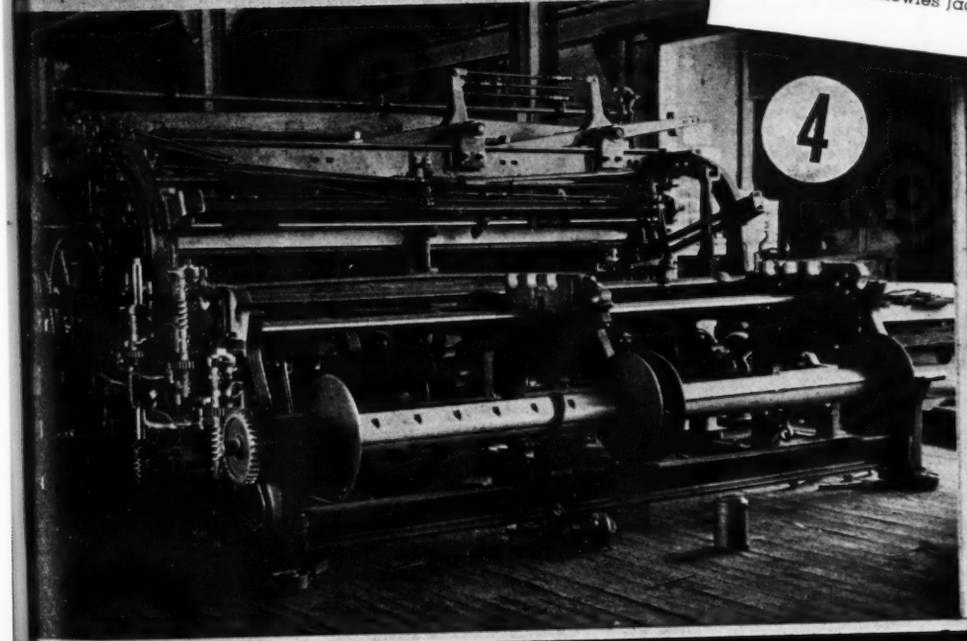
If you have a special loom in mind to meet some particular problem, won't you consult us? We have a loom for every woven fabric.

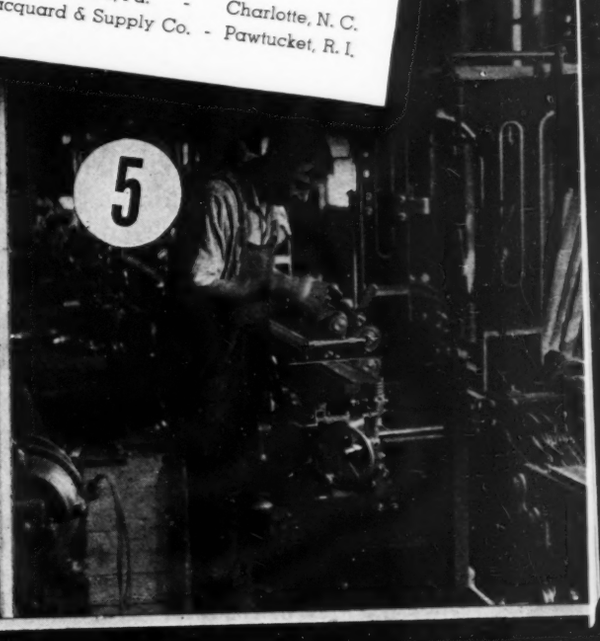
CROMPTON & KNOWLES LOOM WORKS

WORCESTER, MASS.

Allentown, Pa. - Philadelphia, Pa. - Charlotte, N. C.

Crompton & Knowles Jacquard & Supply Co. - Pawtucket, R. I.





DON'T BE A LONE WOLF

Let COLLECTIVE THINKING
Solve Your Sizing and Finishing Problems

Chemical Research and the increased tempo of style changes have created so many new textile processing problems, that the plant chemist or processing foreman that tries to solve them all by himself is often seriously handicapped.

Don't be a lone wolf. Follow the precedent of many other men in responsible positions, both business and professional, and let COLLECTIVE THINKING solve your sizing and finishing problems. Utilize the experience and knowledge of others as well as your own.

CHEMICALS

Sizing and Finishing Gums and Compounds • Soluble Gums • Softeners • Soluble Oils • Tallow • Waxes • Soaps • Flour • Dextrines • Starches • Pigment Colors and Lakes • Ammonia • Acids • Blue Vitriol • Borax • Bichromate of Soda • Bichromate of Potash • Liquid Chlorine • Chloride of Lime • Caustic Soda (solid and flaked)

A-H Consultation Service offers you this outside experience and specialized knowledge free of charge. It is rendered by a staff of specially trained chemists, assisted by a completely equipped, modern laboratory and a company experience of 121 years. They can assist you in checking the efficiency of routine processing methods as well as in the solution of new problems.

Our local representative will call on request.

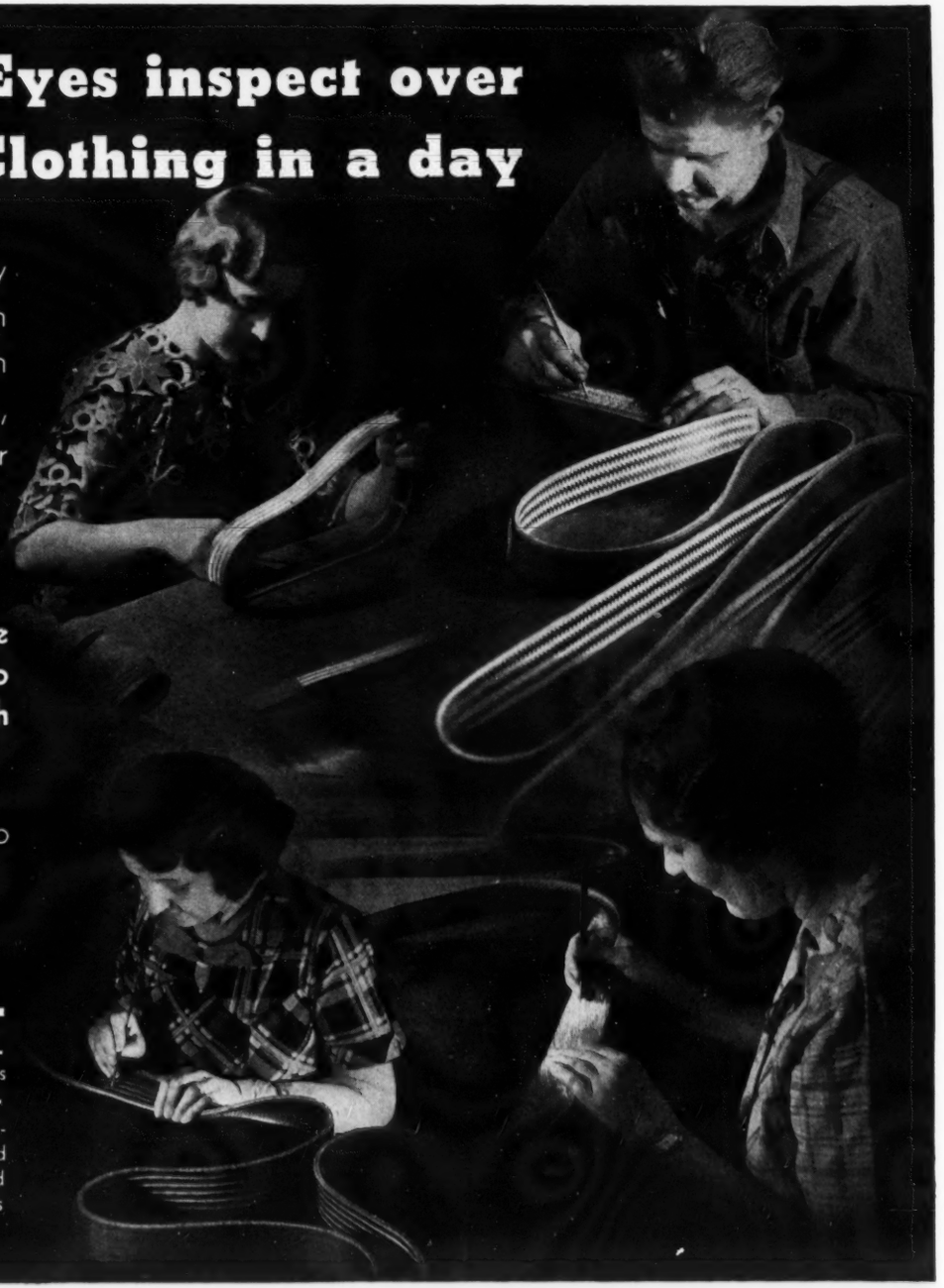
Arnold, Hoffman & Co., Inc.

Established 1815. Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York • Boston • Philadelphia • Charlotte

Nimble Fingers and Keen Eyes inspect over 2 miles of TUFFER Card Clothing in a day



Over 56 million points are examined every working day by highly-skilled inspectors to maintain TUFFER quality. Such vigilance brings TUFFER Card Clothing to you with every tooth in correct position, with uniformity in height, pitch and angle, with all edges correctly trimmed and finished perfectly for immediate use on your cards.

A boss carder in South Carolina says:

"I am a user of TUFFER Card Clothing and find it to be good and tough and to last a long time. It is a pleasure to apply it and watch the uniform results day by day, through years of service."

If you have a problem in carding, we shall be pleased to submit suggestions from our 70 years of experience.

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.
Southern Plant: 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

Products: Fillets for Feed Rolls, Lickerins, Tumblers, Strippers, Workers, Doffers, Fancies, and Cylinders, Doffer Rings, Napper Clothing, Strickles, Emery Fillets, Burnisher Fillets, Top Flats Recovered and extra sets loaned, Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant. Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

Is Warp Sizing

The Weak Spot

In Your Weaving Efficiency?

THE story of Achilles' heel is just a legend, but there is a moral back of it which every weaver recognizes. Improper sizing is usually the single vulnerable spot that interferes with efficiency in weaving warp yarn. Poorly sized warp yarn has that saw-tooth feel—threads hang together in the shed where the shuttle breaks them short, fibres shed off and the yarn cannot stand the chafing of the reed—knots break the companion thread and cause many loom stoppages.

Look to your warp sizing if you will have real weaving efficiency. The finest size mixture can be had ONLY if the starch has been successfully modified.

There are many kinds of enzymes for converting starch, but time has proven that malt-diastase, pancreas and other enzymes carry the conversion into sugars to the utter destruction of the desirable properties of starch for warp sizing.

There is only ONE enzyme product that has stood the test of time for successfully liquefying ANY brand of pearl starch to produce the most superior warp sizing and cloth finishing mixtures. This is ARCY (fully protected by U. S. Patents) and it can be relied on to work satisfactorily under ALL working conditions and on ALL grades and brands of pearl starch. ARCY carries the conversion to just the RIGHT degree, producing a thin, non-congealing size solution with superior penetrating and binding qualities—a solution that is transparent and does not tend to cloud the colors or produce frosty splotches.

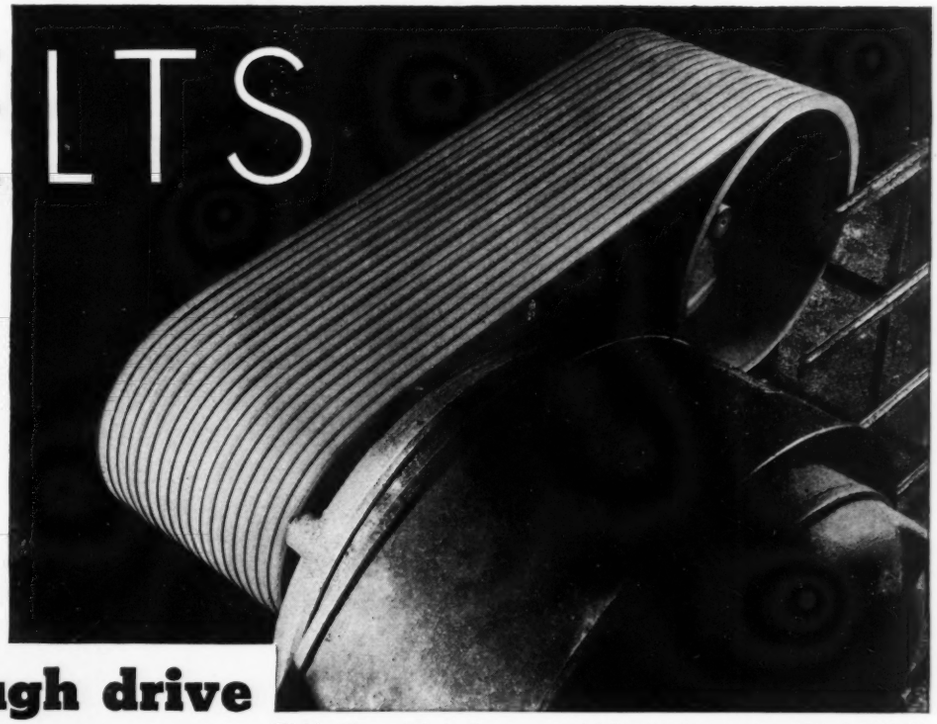
Let ARCY help you take the weak spot out of your weaving efficiency. An interesting booklet will be sent you without obligation. Ask for your copy today.

DRAKE CORPORATION

NORFOLK, VIRGINIA

ARCY

GILMER V-BELTS



take this tough drive as "just another job"

Click! — the switch is thrown . . . simultaneously seventeen Gilmer I C 44 V-Belts seat themselves snugly in the sheaves of this big blower drive . . . sharing the load equally, picking it up gently, absorbing *every* shock!

THE Taggert Valley Glass Works, Washington, Pa., is the scene of this example of Gilmer superiority. This heavy-duty multiple V-drive operates a large blower from a 150 h. p. motor. Subject to sudden shocks, it is far too tough for the average belt . . . but to Gilmer V-Belts it is "just another job." Here, as on thousands of other V-drives, Gilmer V-Belts are demonstrating their efficiency and economy.

Gilmer BELTS

However severe your belting requirements may be, you will find that Gilmer V-Belts "measure up." Give them a try, on any V-drive, and you'll see why most maintenance men say—"they're the best belts made."

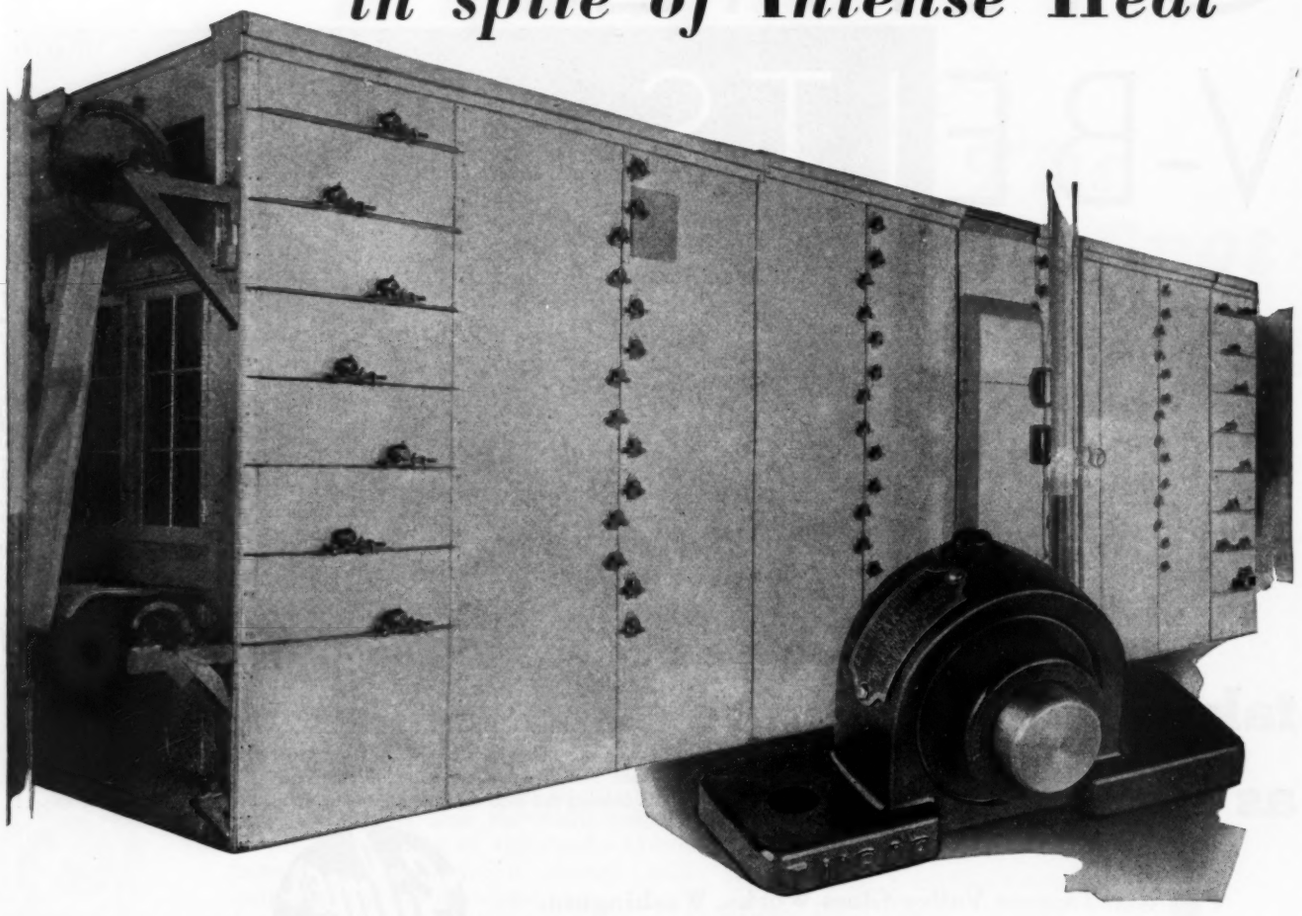
L. H. GILMER COMPANY, Tacony, Philadelphia

Manufacturers OF COMPLETE LINE OF POWER BELTING

V-belts · Kable Kord Roll and Endless Flat Belting · Planer Belts · Speedage Endless Fabric Belts · Cone Belts
Roving Frame Belts · Moulded Rubber Belts · Winder Belts · Spinner Belts · Refrigerator and Washing Machine Belts
Conveyor Belts · Round Roll and Endless Fabric Belting · Endless Belting · Endless Cotton Belts · Laundry Feed Ribbons

SPECIALISTS IN QUALITY BELTS SINCE 1903

CONTINUOUS, SMOOTH OPERATION *in spite of* Intense Heat



184 Fafnir Ball Bearing Pillow Blocks assure dependable, friction-free operation of this dryer in a well-known bleachery. All bearings in service here are subjected to the intense heat common to dryers. But heavy duty pillow blocks at the ends and lighter units in the center section provide continuous, smooth operation despite this heat. Friction losses are reduced to a minimum and maintenance is uniformly low.

Fafnir provides a complete line of bearings—whether housed units such as pillow blocks, or standard single and double row bearings—for all textile machinery. Builders and users alike have learned from experience that machines equipped with Fafnirs are truly efficient. Such efficiency is the result not only of the finest workmanship and design that characterizes Fafnirs, but also the completeness of the line, assuring the ideal anti-friction bearing for each and every service.

Gain the advantages of minimum maintenance and low cost machine performance by specifying Fafnirs. The Fafnir Bearing Company, New Britain, Connecticut. Representatives also at: Atlanta, Georgia . . . Houston, Texas . . . Charlotte, North Carolina . . . Boston, Massachusetts . . . Dallas, Texas . . . Birmingham, Alabama . . . Kansas City, Missouri.

FAFNIR BALL BEARINGS ARE NOW IN SERVICE IN SUCH TEXTILE MACHINERY AS THE FOLLOWING:

Bale Breakers	Dyeing Equipment
Feeders	Extractors
Openers	Dryers
Feed Tables	Printing Machinery
Distributors	Agers
Breaker Lappers	Soapers
Intermediate Lappers	Tenter Frames
Finisher Lappers	Calenders
Cards	Button Breakers
Roving Frames	Shoddy Pickers
Spinning Frames	Garnett Machines
Twisters	Burr Pickers
Winders	Mixing Pickers
Warpers	Scourers
Slashers	Fulling Mills
Looms	Shearing Machines
Bleaching Equipment	Rayon Pot Spinners

FAFNIR BALL BEARINGS

THE HAMEL-PROCESS for STAPLE FIBRE MANUFACTURE LEADS THE WAY

Our orders on hand for Machinery for Staple Fibre Manufacture provide for hundreds of thousands of pounds of daily production!

For further information apply to:

AMERICAN TEXTILE ENGINEERING, INC.
KEARNY, N. J.

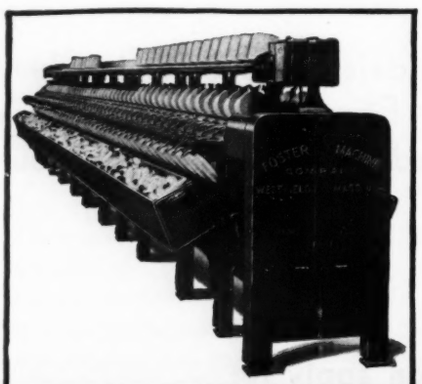
FOSTER WOUND

A "BUY WORD" IN THE KNITTING TRADE

Knitters buy more readily when yarns are Foster wound, because the superior performance of Foster cones for many years has made them "standard for the knitting trade."

Foster leadership in the knitting field is more securely entrenched than ever before because of the new Model 102 machine.

Foster Model 102 cones reduce variation in tension at the knitting machine due to more exact lay of yarn on the cone surface and because of more uniform cone density. Furthermore this density can be more readily controlled to suit particular requirements.



FOSTER
MODEL 102

The Model 102 machine increases production 100 per cent as compared with older models and reduces labor cost about ⅓. It also has many refinements which merit your investigation, including self-threading tension and additional slub-catching.

Investigate now and safeguard—

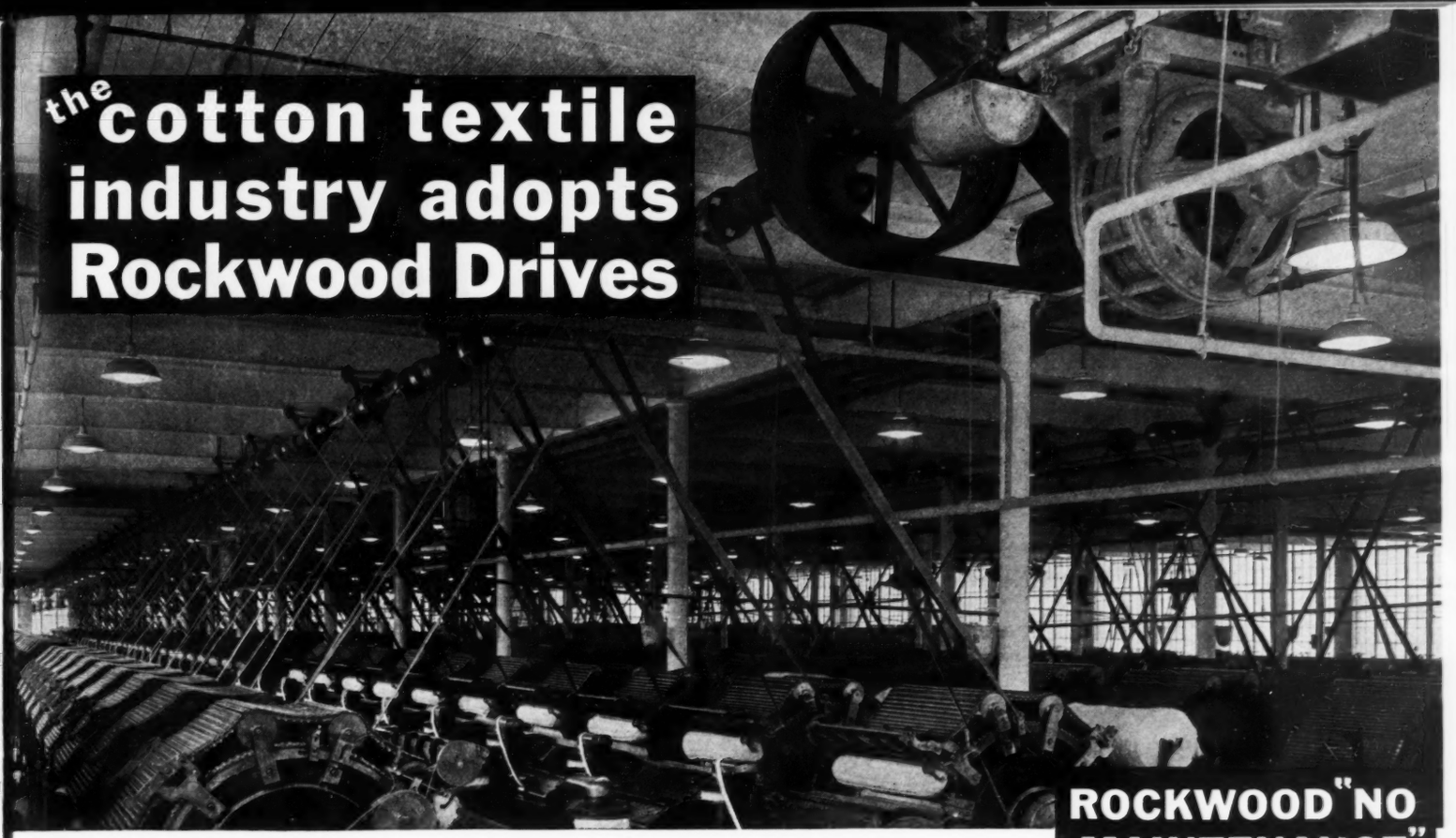
YOUR REPUTATION --- Winding Makes It or Breaks It.

FOSTER MACHINE CO.
WESTFIELD, MASS.

FRED P. BROOKS, Representative
P. O. Box 941, Atlanta, Ga.

Standard for the Knitting Trade

the cotton textile industry adopts Rockwood Drives



ROCKWOOD "NO MAINTENANCE" CEILING TYPE DRIVE PROVES THE IDEAL OVERHEAD LINESHAFT DRIVE in Cotton Mills

White Oak mill drives 66 cards with 85 h. p. Rockwood short-center lineshaft Drive

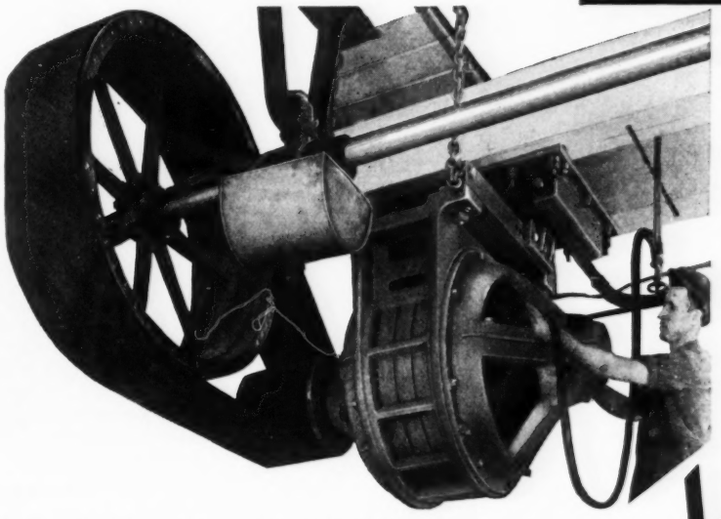
AMONG the types of Rockwood Drives that the cotton textile industry has "adopted" so widely is the now famous *"no maintenance"* ceiling type drive pictured. One man on a ladder can service the motor in a few minutes—at the rare intervals when minor adjustment is required.

The "no maintenance" ceiling drive *is an engineering ideal for lineshafts in* cotton mills. From the standpoint of *driven machine performance, uniformity of speed, savings in power, and elimination of maintenance troubles,* Rockwood Drives have proven themselves *far superior.*

This insures increased output and a better quality of work done because they *maintain* uniform belt tensions, regardless of the continual changes in belt lengths—and thus provide a *smoother,* more *dependable* flow of power. They decrease power consumption as each Rockwood Drive is adjustable so that minimum belt tension is required to handle the load. Savings in bearings and motor repairs as well as in power bills result.

They give a new freedom from drive troubles and annoyances that plant men are enthusiastic about.

Here is a good example of the Rockwood "no maintenance" ceiling type drive. As you come into this new and impressive card room the 85 h.p. motor seems very large as it hangs there with its 16" and 48" pulleys lightly cradled in the 15" wide belt. But it is up there to stay and will operate dependably and efficiently for years and years. The belt tension is so adjusted to the load of the 66 cards that minimum tightness is required at all times and maximum efficiency results. Drive maintenance has been sharply reduced and power is being saved. The cotton textile industry has installed these Rockwood ceiling drives widely. Once used they are quickly recognized as "the ideal lineshaft drive."



IF YOU ARE BUYING NEW MACHINERY—OR RE-ARRANGING OLD MACHINES—IT WILL PAY YOU TO HAVE A ROCKWOOD ENGINEER CALL. HE WILL BE GLAD TO POINT OUT THE SAVINGS YOU CAN MAKE.

Rockwood drives

THE ROCKWOOD MANUFACTURING CO., INDIANAPOLIS, IND.
Division of General Fibre Products, Inc.

THE RIGHT FUEL . . .

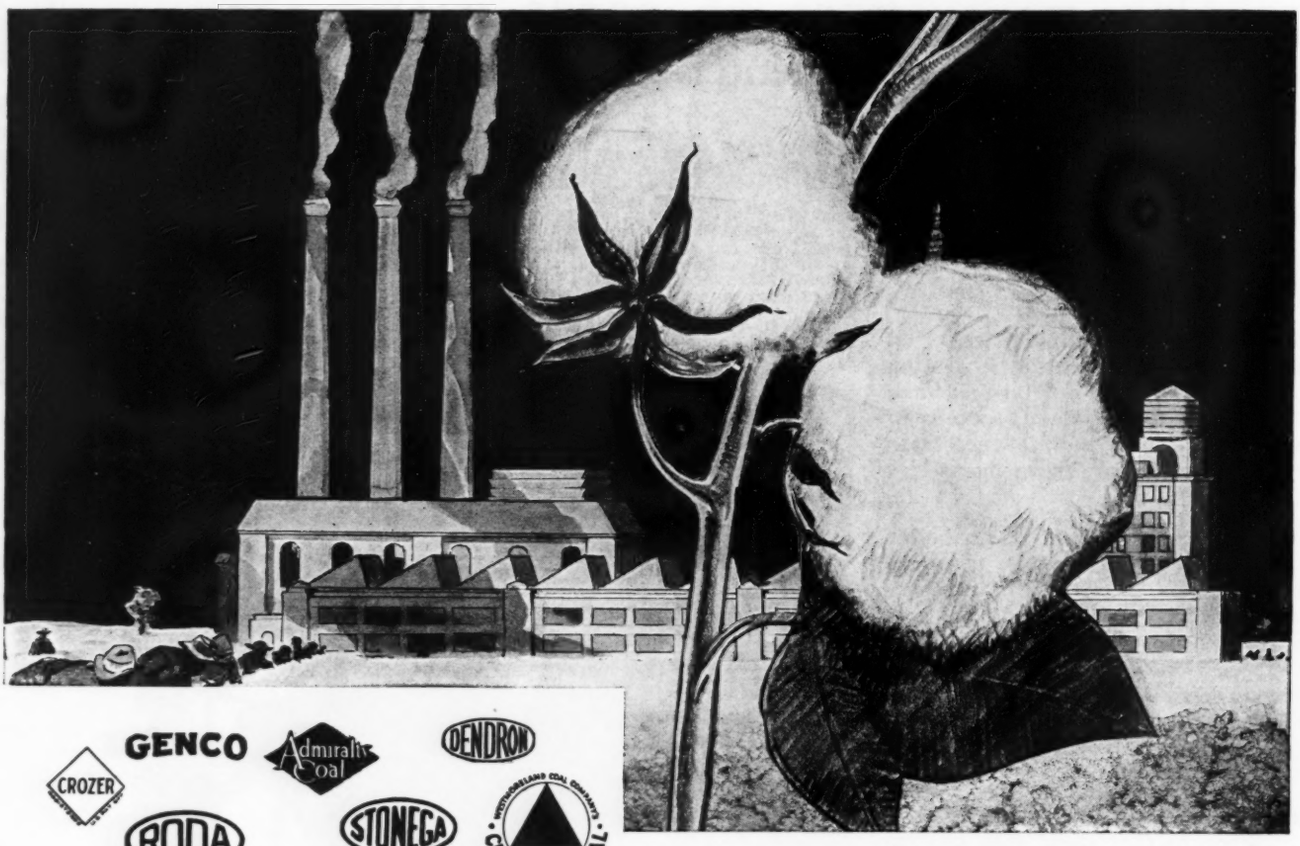
KEEPS *Profits* FROM GOING UP THE CHIMNEY

And the right fuel is the fuel *best suited to your job.*

Are you using it now?

If you're not you *ought to be* — and the General Coal Company *has it!*

Each General Coal Company brand stands for the utmost in its particular analysis. And — strategic location to your plant means the efficient and expeditious filling of your contract requirements.



GENCO · Admiralty Coal · DENDROW · CROZER · RODA · STONEGA · CRITERION COAL · PREMIX STOKER · DEPENDABLE ANTHRACITE

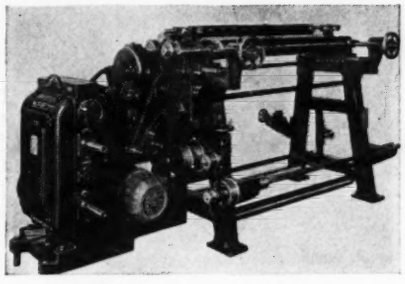
GENERAL COAL COMPANY
PHILADELPHIA, PA.

BOSTON NEW YORK CHARLOTTE, N. C. PITTSBURGH DETROIT BUFFALO CINCINNATI IRWIN, PA. RICHMOND

GENERAL COAL COMPANY

GENERAL COAL

What's New IN VARIABLE SPEED CONTROL

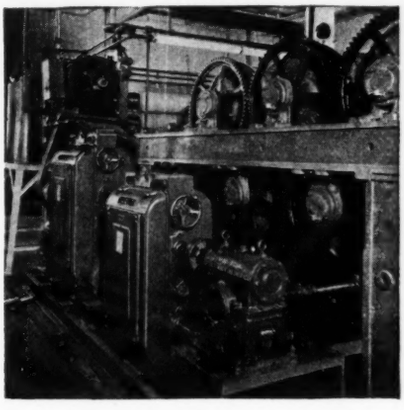


Courtesy of Tenny & Hoffman

MACHINE: ROLLER PRINTER for laying gold, silver and lacquers on all types of cloth, being especially adapted for velvets.

Problem: To vary speed of entire machine according to type of cloth, consistency and drying qualities of inks or dyes, humidity and temperature; also to maintain proper tension on cloth.

Solution: Infinite accurate speed adjustability as provided by the REEVES Variable Speed Transmission. Two REEVES Transmissions are used. The main drive is through a REEVES vertical enclosed unit, which permits feeding to a take-away conveyor at any required rate from 5 to 20 yards a minute. A small horizontal enclosed REEVES Transmission drives nip rolls which maintain proper tension on cloth at all times. The absolute precision of REEVES control is especially important here because the cloth is printed under tension with no pressure exerted; and this tension must be adjusted and maintained with extreme accuracy to secure best possible printing results.

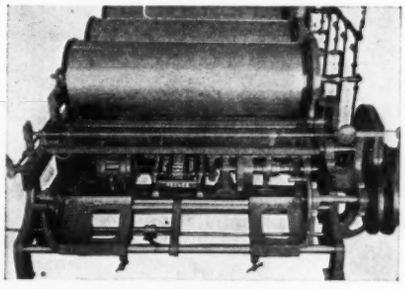


Courtesy of Textile Finishing Machinery Co.

MACHINE: TAPE FINISHER.

Problem: To vary speed to compensate accurately for different materials being processed, kind of finish desired, variance in temperature of cans, room temperature, humidity and production schedules.

Solution: Two vertical enclosed design REEVES Transmissions are applied. One Transmission (the larger unit pictured here) drives the entire machine and the other REEVES controls and synchronizes the horizontal drying section. This speed adjustability, which provides exactly the proper speed to compensate for all variable processing requirements, insures absolute uniformity in quality of product and fast, economical output.



Courtesy of Chas. B. Johnson

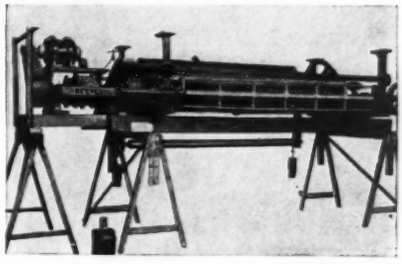
MACHINE: SILK SYSTEM RAYON WARP SIZER.

Problem: To drive machine at variable speed depending on how various rayon and silk yarns take sizing solution and according to variations in heat of cans, room temperature and humidity.

Solution: The main drive is one self-contained unit consisting of constant speed motor, a horizontal open design REEVES Variable Speed Transmission, and a reversing motion. Speed of entire machine is controlled from every important operating point. The slow speed feature permits giving the warp just enough "creep" so it will not remain in the size solution or stick to drying cans. Through this REEVES control, any speed needed to meet the many variances in processing conditions and production flow, is instantly and accurately available.

MACHINE: SCUTCHER OR CLOTH OPENER for use in bleacheries, woolen and worsted finishing mills and piled fabric mills.

Problem: To regulate speed of machine so that it may be synchronized automatically with speed of next machine in range.

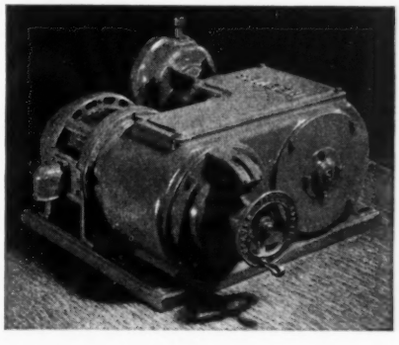


Courtesy of Birch Brothers, Inc.

Solution: A REEVES Variable Speed Transmission with universally adjustable motor base is used. Automatic control is provided through a compensating gate consisting of dancer roll, idler roll and brackets. Thus the Scutcher is automatically and perfectly synchronized with the speed of the machine following.

MOTODRIVE—LATEST MEMBER OF REEVES LINE

The Motodrive combines in one self-contained unit a constant speed motor, a REEVES speed varying mechanism, and reduction gears where desired.



Any standard constant speed, ball bearing foot type motor may be used. Ideal for installation on machines where space is limited or where direct connection to driven machine is necessary. Manufactured in two designs—horizontal and vertical—each design available in five sizes which take motors from ¼ to 10 h. p. and which cover speed variations from 2:1 to 6:1.

REEVES PULLEY COMPANY, COLUMBUS, INDIANA

Please send following descriptive literature on your speed control equipment: ( ) Speed Control Handbook T-36 ( ) Motodrive Catalog TM-36.

Name .....

Company .....

Address .....

A LEADING FACTOR for 35 years in the manufacture and development of sulphonated oils for every textile need. We can supply you with any type of sulphonated oil from stock or adapt any product to your specific needs.

Our sulphonated olive oils are made from pure olive oil. They are extremely soluble, high in SO_3 content and low in neutral fat.

Sulphonated castor oils are extremely soluble, low in neutral fat, absolutely clear, unadulterated, and available in varied concentrations.

Monopole Oil is a double sulphonated castor product and is also available in special types adjusted to specific requirements.

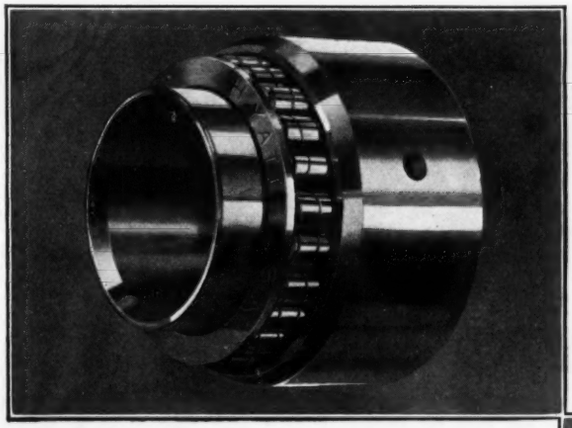
No matter what your requirements are we can supply you. Samples of any product will be sent on request. If you have a special problem our laboratories are at your disposal without cost or obligation.

JACQUES WOLF & CO.

MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY

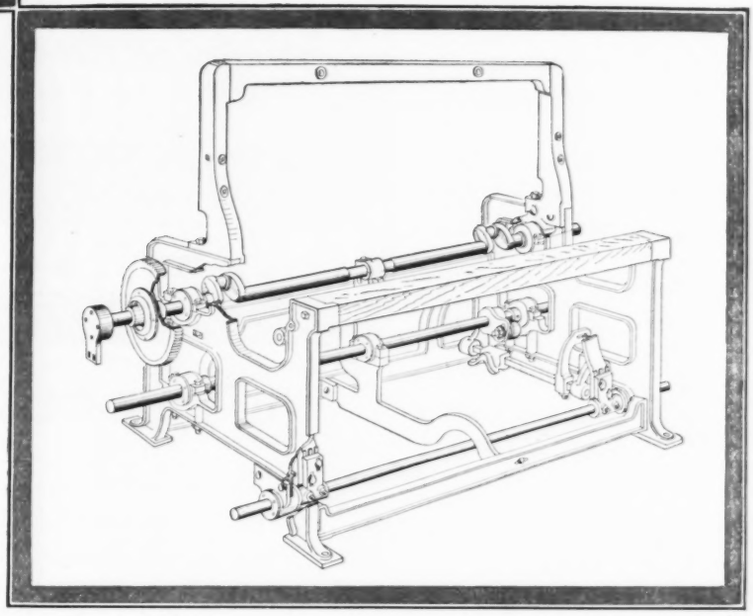
Warehouses: **Providence, R. I., Philadelphia, Pa., Utica, N.Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn.**

FRIEND OF THE OVERSEER OF WEAVING



when mounted on

CRANKSHAFT
CAMSHAFT
ROCKERSHAFT
TAKE UP
DOBBY-DRIVE



Because — looms equipped with Hyatt precision bearings:

Don't spatter oil on cloth.

Don't produce as many seconds.

Don't stop often for fixing.

Don't get out of adjustment due to bearing wear.

Will produce more yardage.

Will lessen thick and thin spots.

Will save power and oil.

Will turn over easier by hand.

Over 150,000 Hyatt bearings operating for many years in looms have proved these many advantages to many overseers.

Specify Hyatts for all your looms and other Textile Machinery as well.
HYATT ROLLER BEARING COMPANY, P.O. Box 476, NEWARK, N. J.

HYATT
ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

10 big advantages of

*ALIPHATIC ESTER SULPHATE and *GLYCERYL SULPHATES

*PATENTED

1. EXCEPTIONAL STABILITY
2. EXTREME SOLUBILITY
3. THOROUGH PENETRATION
4. HIGHER SO_3 CONTENT
5. CUTS TIME
6. REDUCES TROUBLE
7. SAVES ON DYESTUFFS
8. GIVES FINER FINISH
9. FOR ALL FABRICS
10. MODERATELY PRICED

In PROCESSING and FINISHING!

Throwsters—bleachers—dyers—printers—finishers . . . all are benefitting from the unique advantages of ALIPHATIC ESTER SULPHATE and the GLYCERYL SULPHATES.

These patented compounds reach the point of complete sulphonation, having three times the SO_3 content of average oils. They will not break under acids, alkalies, boiling, hard or calcerous water. They leave no undissolved particles to spot or streak. They assure thorough cleansing and level shades. The finish is rich, full-bodied and penetrated.

This series comprises four types to meet all needs. They are priced moderately within reach of every mill. Make tests in your mill. Write for samples and further information.

The Series:

ALIPHATIC ESTER SULPHATE
For penetrating and wetting out in dyebath. For Kierboiling, Throwing, Vat Dyes, Finishing and Printing.

STEARO GLYCERYL SULPHATE
For softening and finishing Cotton, Rayon, Silk, etc.

OLEO GLYCERYL SULPHATE
For finishing, softening and lubricating Silks, Rayons or mixed goods. For dyeing, finishing, kierboiling, hosiery boil-off, silk throwing and base for emulsions.

PALMITO GLYCERYL SULPHATE
For finishing Cottons and Rayon.

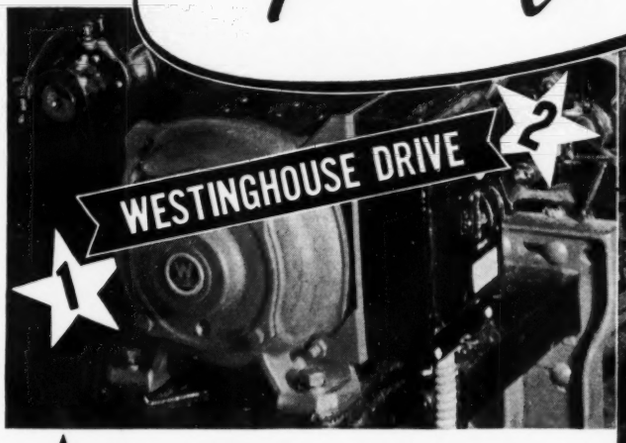
ONYX OIL & CHEMICAL CO.
JERSEY CITY, N. J.

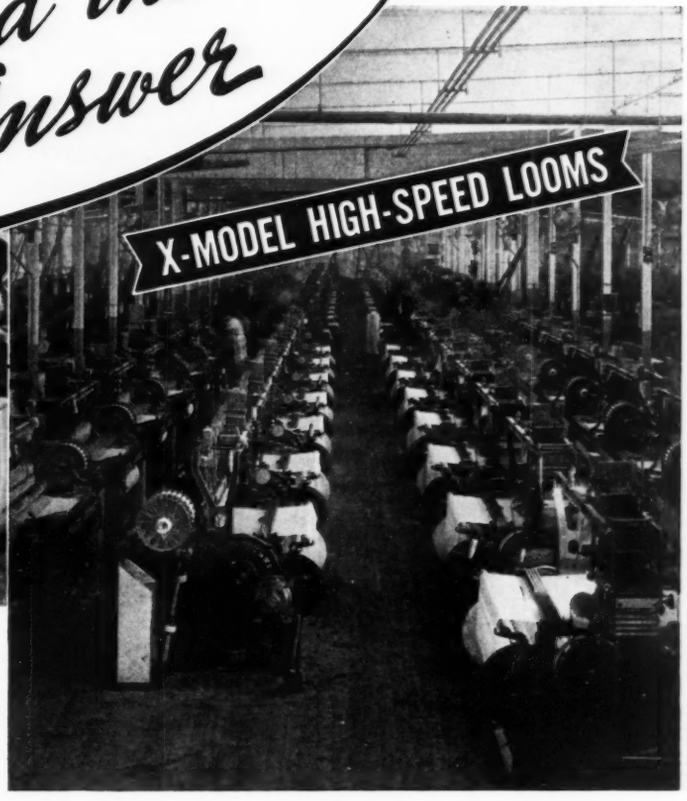
Specialists on Finishing Materials

Southern Repr. E. W. KLUMPH, Charlotte, N. C.
Midw. Repr. MAHER COLOR & CHEMICAL CO., Inc., Chicago.
In Canada, ONYX OIL & CHEMICAL CO., Ltd., Montreal.

Lower Cost per Yard?

In this pair you'll find the Answer





1 High efficiency and extra strength are built into Westinghouse loom motors to withstand high-speed loom service.

2 The WK-18 Motor-mounted starter designed with an exclusive Westinghouse mounting arrangement, protects the motor against overloads. Mounted on the motor, the switch is more convenient for hand operation and out of the way of the cleaners. It is safe and positive in operation under conditions of excessive humidity.

Draper Model X, 40-inch Looms, equipped with Westinghouse Drive.

● Today's modern high-speed looms immediately bring their users maximum savings and lower cost per yard. And you are doubly sure of these savings when looms are equipped with Westinghouse Motors and Control. Here are some of the reasons.

Ample power for breaking in high speed looms and reserve capacity for all loads.

Low power consumption gives lower cost per yard because of the exceptionally high motor efficiency.

Low maintenance is assured because the oil filler cap is easily accessible, the oil column is vertical and has extra capacity for quick filling. Over-oiling is impossible. Oil cannot reach the windings. The rotor is practically indestructible and bearings are built for long life.

Effective overload protection because the WK-18 starter uses the famous "Built-in Watchman" for protection against dangerous overloads and yet permits the motor to carry safe overloads without interruption.

When you install new high speed looms be sure to specify Westinghouse Drive. They are built especially for the Draper models C, X, XK, XL and the Crompton and Knowles Models C3, C4, S3, S4, W2, W3. J 90034

Westinghouse Electric & Manufacturing Co.
East Springfield, Mass.

Westinghouse LOOM DRIVE

"...no other sizing products which will equal the results obtained with yours"

MANVILLE JENCKES CORPORATION

MANVILLE, RHODE ISLAND

NEW YORK OFFICE
40 WORTH STREET

KENNETH B. COOK
VICE-PRESIDENT

May 28, 1936

Mr. Aaron E. Carpenter, President
E. F. Houghton & Company
240 West Somerset Street
Philadelphia, Pa.

Dear Mr. Carpenter:

We have received a copy of your first issue of "Research, Illustrated" and find it very interesting. This contains a lot of valuable information, and we naturally are pleased to see illustrations of our new slashing equipment, which was developed primarily at Manville Jenckes.

We have been working with your company for the past year [illegible] cotton sizing, and are pleased to say that after many months of extensive tests and development work, we have been unable to find any other sizing products which will equal the results obtained with yours.

We are very insistent upon obtaining uniform products and have been impressed by what you say regarding your Control Department which checks the quality of each batch of finished material shipped out. This gives us double protection, for we also test all shipments as they are received here.

Yours very truly,

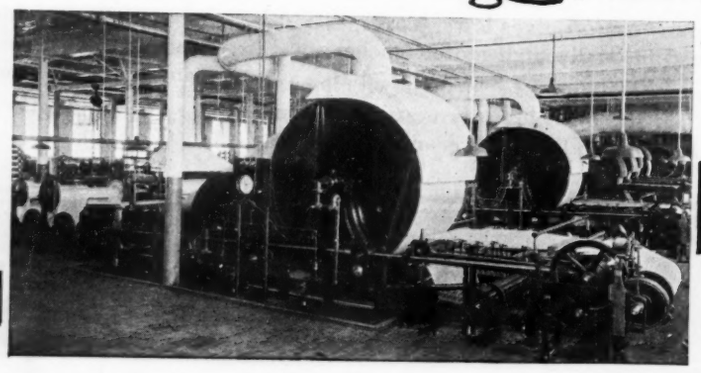
MANVILLE JENCKES CORPORATION

K. B. Cook

Vice Pres.

Houghton's Warp Conditioners in conjunction with four new Saco-Lowell slashers have resulted in "substantially higher weave room efficiencies than ever before." The problem of developing the proper size formula to run at these high speeds under non-foaming conditions was worked out by the Houghton Research Staff. It will pay you to get the whole story of the Houghton Size Check-up Test from E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

THE HOUGHTON LINE
OF TEXTILE OILS and LEATHERS

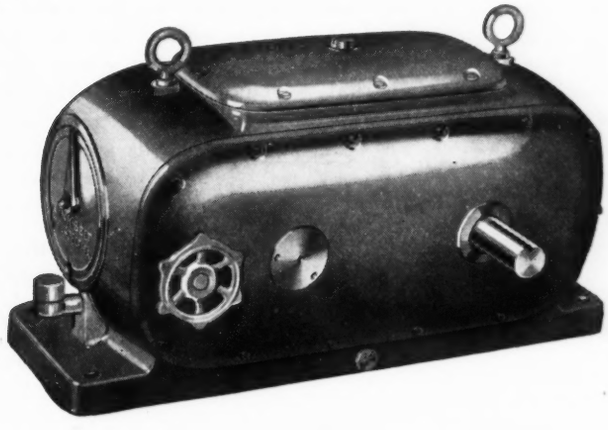


Slashers at Manville Jenckes plant operated at 60 to 70 yards per minute with no foaming.

P.I.V.

POSITIVE INFINITELY VARIABLE SPEED CONTROL

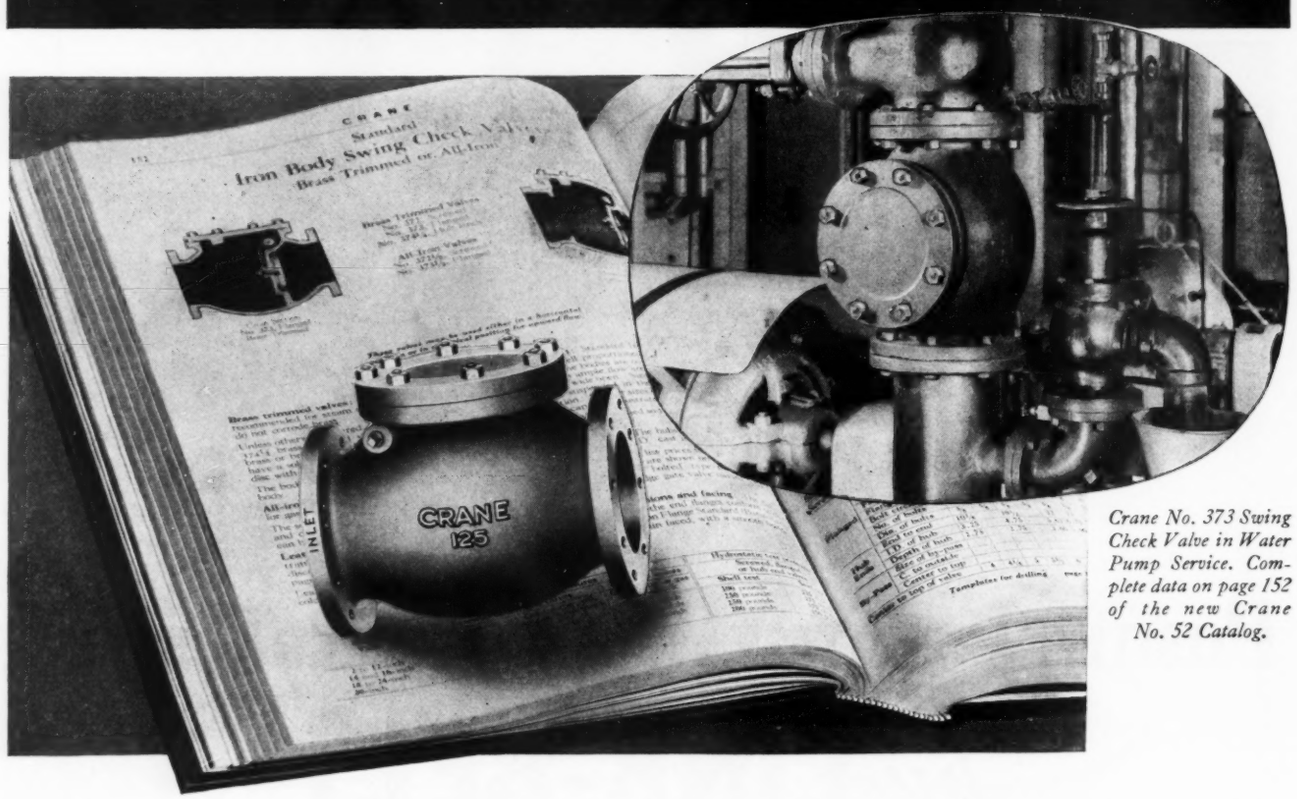
by LINK-BELT



● Infinite variation—fractional-revolution speed changes made and maintained with micrometer precision. Tooth-to-tooth contacts of its unique drive chain with conical wheels, do not permit slip. Compactness and flexibility of application are other outstanding features of the P. I.V. Gear. It is available for horizontal and vertical mounting of the basic unit; also motorized, and with gear reduction sets. Send for Book No. 1574. Address Link-Belt Company, Philadelphia, Chicago, Indianapolis, Atlanta, San Francisco, Toronto, or any of our offices located in principal cities. 5744

FOR ALERT RELIABILITY

Use them on Steam or Water



Crane No. 373 Swing Check Valve in Water Pump Service. Complete data on page 152 of the new Crane No. 52 Catalog.

WHETHER it is guarding a water supply, conserving steam and fuel or protecting against the unexpected emergency, the textile mill's first requirement on swing check valves is unfailing reliability. And Crane Swing Check Valves give you that guarantee backed by years of proved performance.

Every feature of the 373 design has been proved right over and over again. On a two-inch line or a thirty-inch main — you can trust them. And to help gain full operating efficiency, there is a minimum restriction of flow and the highest degree of sensitivity even on jobs that are unusually rough on valves.

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.

Adaptable for either horizontal installation or for upward flow, the valve disc and suspension have been worked out to eliminate the possibility of sticking even where the valve operates only at remote intervals. The closing action is quick and clean cut — a real advantage where operating heads are low. Installation is practical in out of the way places because of extreme accessibility to the operating mechanism.

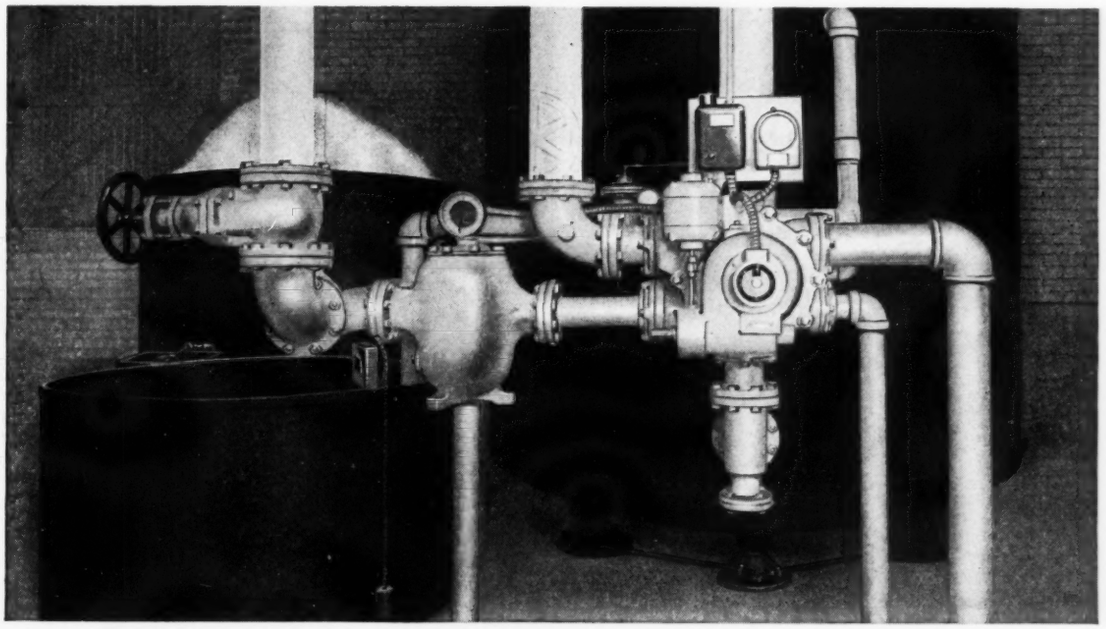
The convenience of your nearby Crane branch or Crane distributor will save time and provide quick, able assistance on your piping problems. You can rely on Crane service and Crane products.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL



Some of the earliest equipment that Permutit built is still going strong. But here is the latest model . . . the fully Automatic Zeolite Water Softener.

"SOFT WATER gives us BETTER RESULTS at LOWER COSTS on bleaching dyeing rinsing and scouring"

● "We installed a Permutit Water Softener in our plant in 1917. This equipment has been giving us very satisfactory service continuously from that date.

"We are able to save about 75% on our soap bill, and obtain much better results in bleaching, dyeing, rinsing and scouring. It has increased the marketability of our product and also greatly aided us in the manufacture of the same."

—a large manufacturer of knit goods

First, find out what harmful impurities are in your process water. This we'll be glad to do for you—without obligation. Ask us to send you a handy sample container, for free analysis of your mill water supply.

Then, do as scores of textile mills have done—install Permutit Equipment which removes the trouble-making elements and gives soft, pure water. Typical results of this treatment are shown in the letter quoted here, where a knit goods manufacturer tells how he has been saving money with Permutit Equipment year after year.

Permutit Water Treating Equipment returns its own cost, by saving soap and chemicals, usually in less than two years. And at the same time by keeping the water supply uniformly good, quality is improved. What sounder investment can you make today?

"Reducing Textile Costs and Troubles" is the name of a booklet which will tell you all about the benefits of water treatment. Write for a copy—it's free, and will not obligate you.

Permutit Water Conditioning Equipment may now be purchased under the terms of the National Housing Act. These loans are not made by the Government, but by your own banker . . . or they can be arranged through Permutit. The terms of payment allow gradual liquidation over a period of years, so your payments are more than met by the savings effected by Permutit.

Permutit

Water Conditioning Equipment

THE PERMUTIT COMPANY, Dept. B1, 330 W. 42nd St., New York City

Please send me, without obligation, your booklet, "Reducing Textile Costs and Troubles," and complete details about the purchase of Permutit equipment under the terms of the National Housing Act.

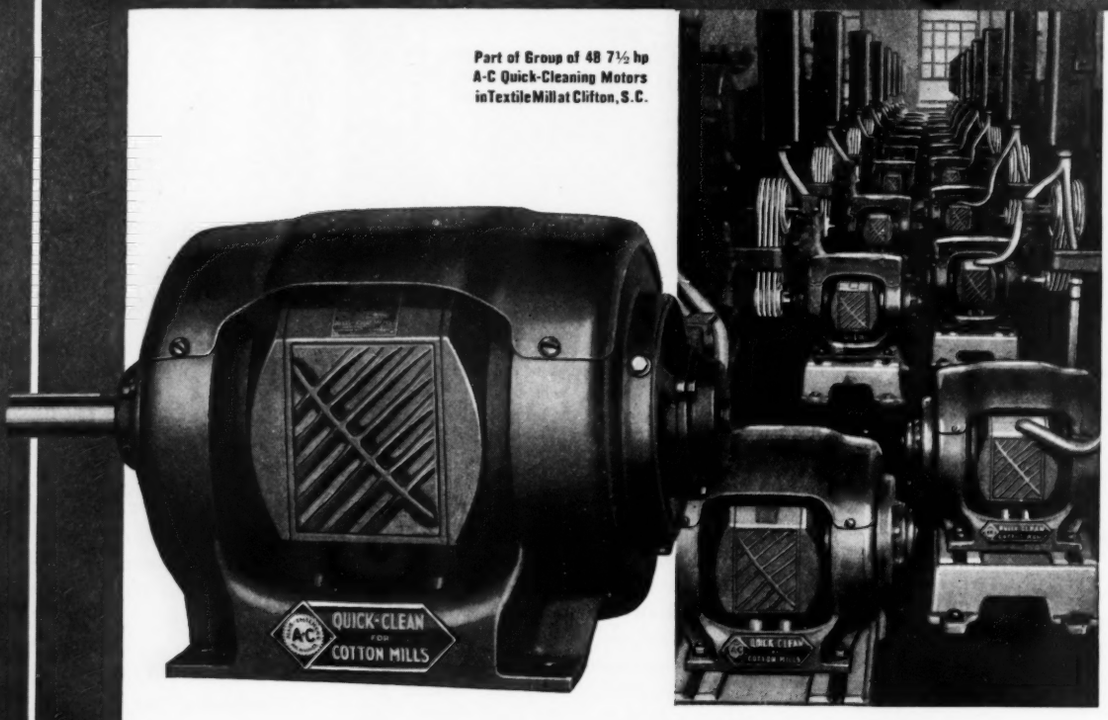
Name _____

Position _____

Company _____

Address _____ City _____

RIGHT DOWN YOUR ALLEY!



Part of Group of 48 7½ hp A-C Quick-Cleaning Motors in Textile Mill at Clifton, S.C.

★ The Allis-Chalmers Quick-Clean Motor was specifically designed and built for the Textile Industry. ★ It is not an ordinary motor converted or adapted. It is not a make-shift. It is a motor—and the only one on the market—that has been especially designed and built to meet the distinct conditions and needs of the Textile Industry. ★ Three outstanding features tell the story: 1—All working parts positively dust-sealed. 2—All surfaces in the air path are glass-smooth so that lint and dust can't adhere. 3—Big, unrestricted air passages so that lint and dust (which you can't prevent from getting in) can easily get out again. These features eliminate overheating and sharply reduce maintenance costs. ★ Four sizes: 5, 7½, 10, 15 hp. Standard N.E.M.A. mounting dimensions.

MOTOR DIVISION

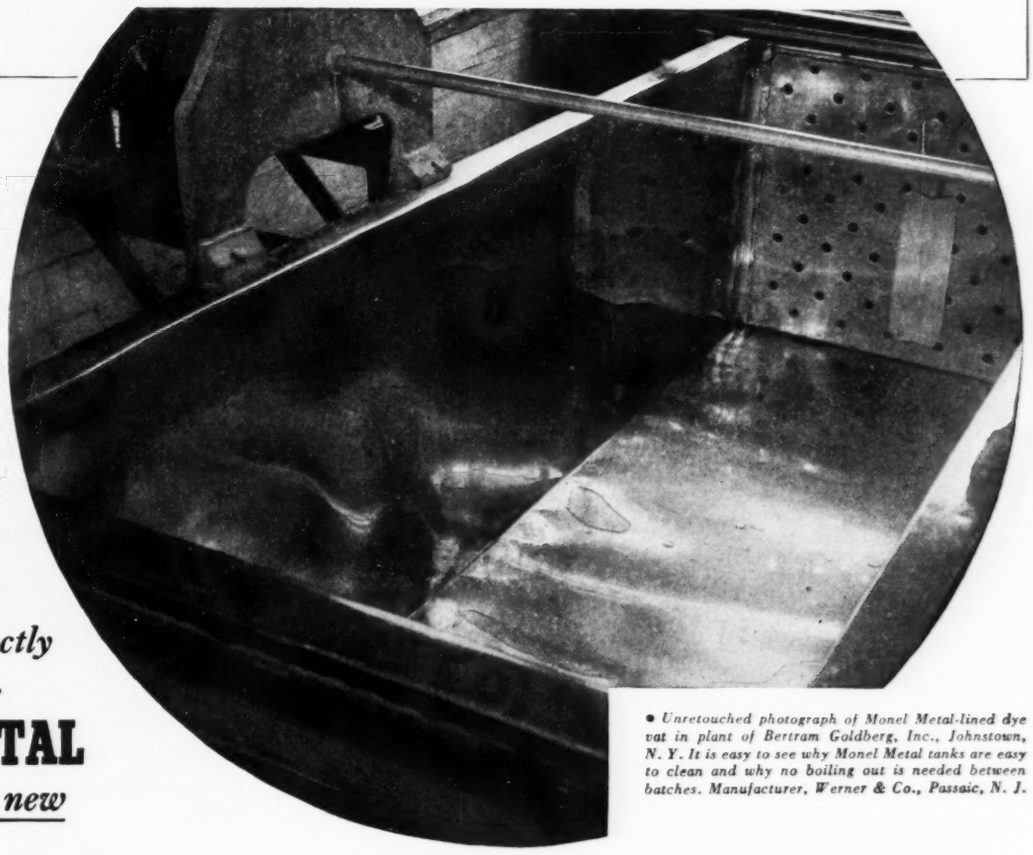
ALLIS-CHALMERS

QUICK-CLEAN

MILWAUKEE WISCONSIN

TIME *hasn't Touched this Tank...*

...*and* WE *haven't Retouched its Photo!*



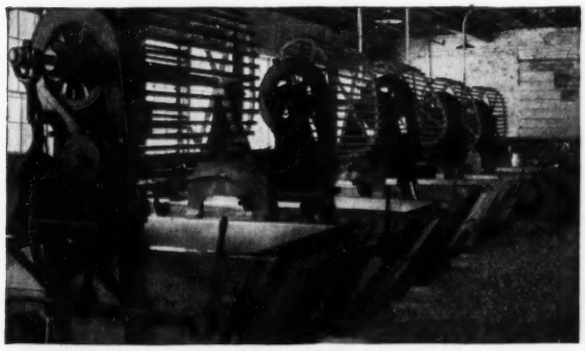
• *Unretouched photograph of Monel Metal-lined dye vat in plant of Bertram Goldberg, Inc., Johnstown, N. Y. It is easy to see why Monel Metal tanks are easy to clean and why no boiling out is needed between batches. Manufacturer, Werner & Co., Passaic, N. J.*

After
10 YEARS'
daily use
it still looks exactly what it is . . .
MONEL METAL
and as good as new

THIS dye vat . . . one of eight Monel Metal-lined tanks in the plant of Bertram Goldberg, Inc., Johnstown, N. Y. . . . has seen practically daily service for ten years. And what varied service that has been:

It is used for dyeing silk, cotton and rayon; using direct, basic, and all acetate colors. Also logwood black. And, in addition, it is used for peroxide bleaching and stripping.

The photos are un-retouched. The close-up shows no evidence of rust, corrosion, wear or roughness. You wouldn't see any if you should go through the Goldberg plant and look at these tanks with your own eyes. But you *would* see a whole battery of Monel Metal-lined tanks . . . equipped with Monel Metal rolls, baffles, heating units, reels and tie rods. You'd also see Monel Metal transfer boxes, hampers, buckets, dyestuff strainers and carrier frames.



Battery of Monel Metal-lined dye vats in the plant of Bertram Goldberg, Inc., Johnstown, N. Y. There are eight Monel Metal tanks in all—equipped with Monel Metal rolls, reels, baffle plates, heating units, and tie rods. Monel Metal is also used in this plant for transfer boxes, hampers, buckets, dyestuff strainer, and carrier frames.

And, with all this Monel Metal equipment, you would look in vain for rust or corrosion. For splinters. Or for chipped or roughened surfaces that might snag delicate fibres. Because Monel Metal is *rust-proof*. It is *solid*, with no coating to chip or wear away. It is stronger than steel. And it takes a high polish and holds it through a long and useful life.

Monel Metal is easily fabricated by all the common methods of working including welding and silver soldering. Write for Bulletin TS-3, "The Use of Monel Metal Equipment for Dyeing with Developed Colors, Stripping and Bleaching." Address:

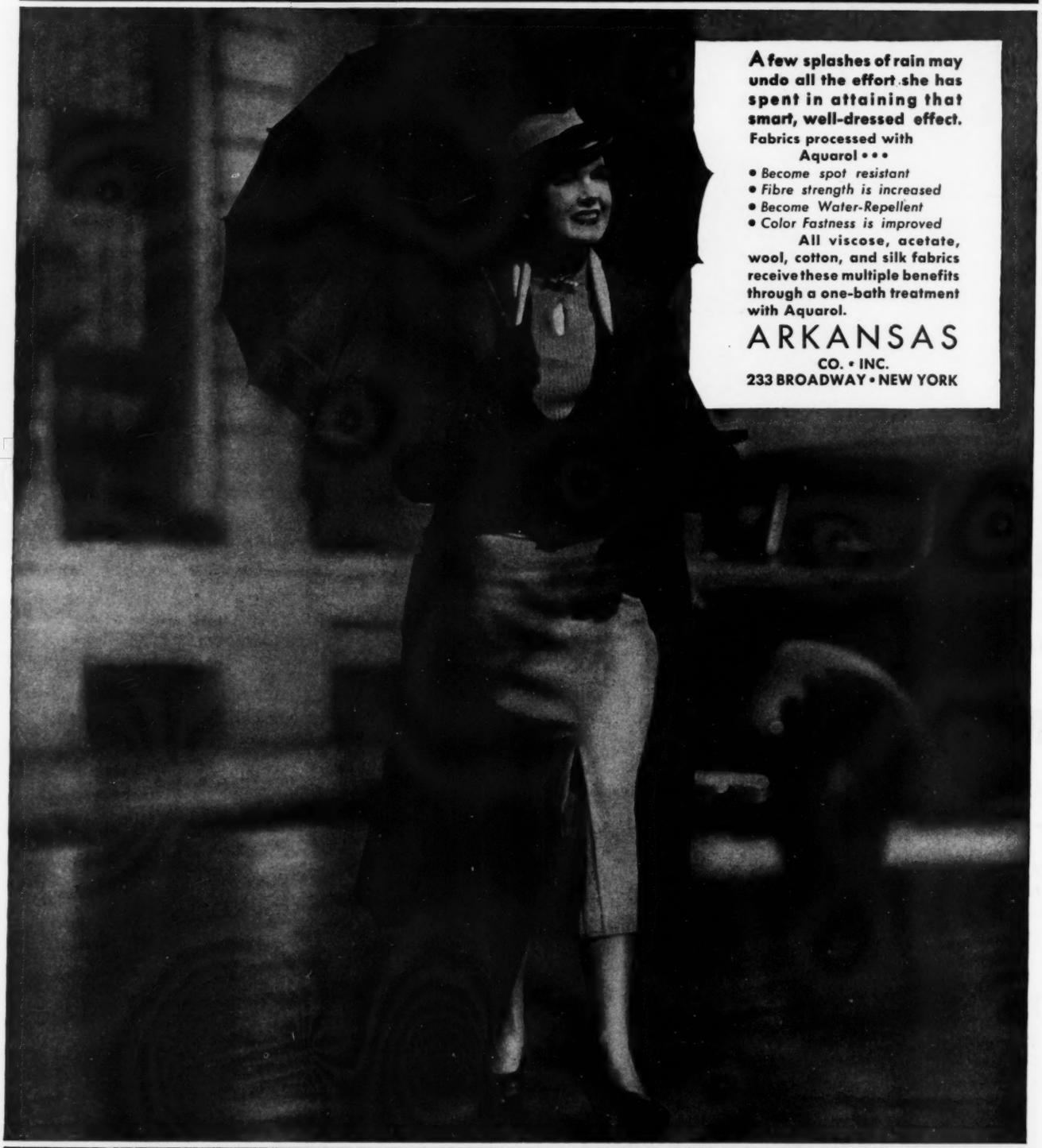
THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

SHE LAUGHS AT

SUMMER SHOWERS



A few splashes of rain may undo all the effort she has spent in attaining that smart, well-dressed effect.

Fabrics processed with Aquarol • • •

- *Become spot resistant*
- *Fibre strength is increased*
- *Become Water-Repellent*
- *Color Fastness is improved*

All viscose, acetate, wool, cotton, and silk fabrics receive these multiple benefits through a one-bath treatment with Aquarol.

ARKANSAS
CO. • INC.
233 BROADWAY • NEW YORK

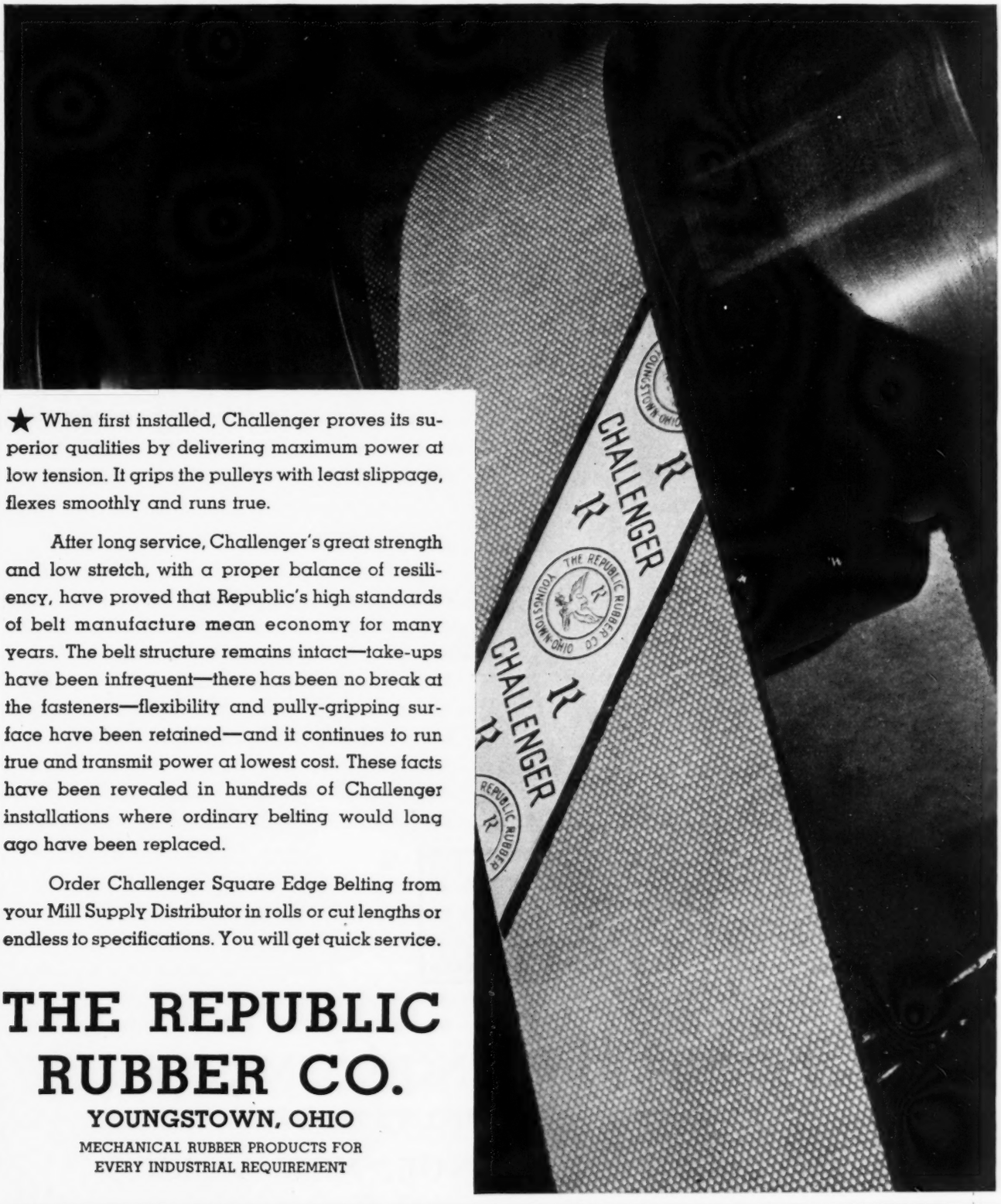
WEATHERPROOF YOUR FABRICS WITH

AQUAROL

REG. U. S. PAT. OFF.

CHALLENGER

MAINTAINS ITS ORIGINAL HIGH QUALITIES



★ When first installed, Challenger proves its superior qualities by delivering maximum power at low tension. It grips the pulleys with least slippage, flexes smoothly and runs true.

After long service, Challenger's great strength and low stretch, with a proper balance of resiliency, have proved that Republic's high standards of belt manufacture mean economy for many years. The belt structure remains intact—take-ups have been infrequent—there has been no break at the fasteners—flexibility and pully-gripping surface have been retained—and it continues to run true and transmit power at lowest cost. These facts have been revealed in hundreds of Challenger installations where ordinary belting would long ago have been replaced.

Order Challenger Square Edge Belting from your Mill Supply Distributor in rolls or cut lengths or endless to specifications. You will get quick service.

THE REPUBLIC RUBBER CO.

YOUNGSTOWN, OHIO

MECHANICAL RUBBER PRODUCTS FOR EVERY INDUSTRIAL REQUIREMENT

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR

85,000 CREDIT FILES

FOR TEXTILE MILLS

Our records contain complete credit information on more than 85,000 customers of textile mills.

Think what this means in intelligence of judgment and rapidity of decision on credit requirements.

Think what it means in creating more sales for you.

The information we possess frequently permits larger shipments than you could possibly make without it--and more shipments mean more profit for you.

We have information right now on most of the customers to whom you sell--*or wish to sell.*

A factoring contract with us, means cash business for you, instant action, more sales, more profit and complete relief from credit losses.

TEXTILE BANKING COMPANY

CAPITAL AND SURPLUS $5,000,000

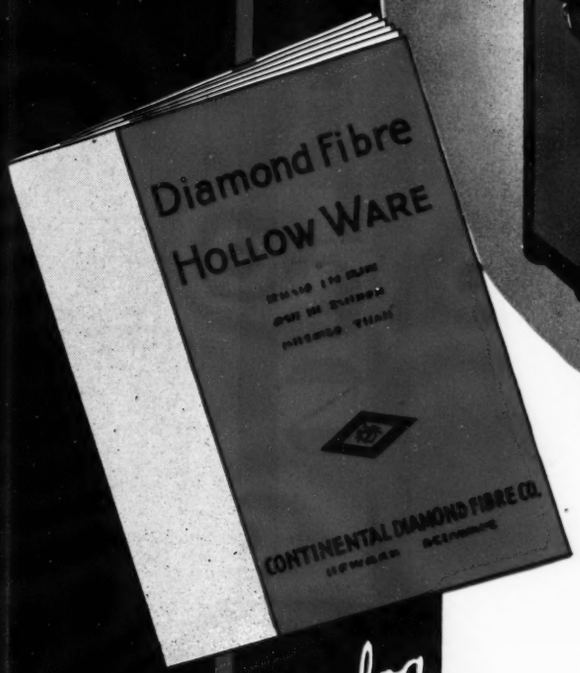
55 MADISON AVENUE, NEW YORK

DIAMOND FIBRE HOLLOW WARE

Lighter THAN ALUMINUM

ALMOST *as* STRONG *as* IRON

- BOXES
- CANS
- TRUCKS
- BARRELS
- BASKETS
- TRAYS
- CASES



Diamond Fibre Hollow Ware provides safe, reliable, economical *material handling.* It is made from Diamond Vulcanized Fibre which has natural properties that make it an ideal material for the manufacture of trucks, boxes, barrels, cans, baskets, trays and other types of Hollow Ware. Diamond Fibre is extremely light in weight, is almost as strong as Iron, is tough, and will not readily crack or shatter under heavy impact. It has a hard smooth surface that will not splinter, scuff nor scar. It is non-corrosive and is grease and oil proof. Each Diamond Fibre Hollow Ware item is made from a grade of Fibre that has been carefully selected to best do the job that will be required of it. While there are standard types of Diamond Fibre Hollow Ware, all made in standard sizes, special types and sizes to meet your particular *material handling* problem can be made to order at no additional cost. Send for our catalog which will tell you more about Diamond Fibre Hollow Ware and how it will help solve your *material handling* problems.

Send for catalog Use this coupon

CONTINENTAL - DIAMOND FIBRE CO., DEPT. C., NEWARK, DEL.

We are interested in the following types of Diamond Fibre Hollow Ware *(please check which)*

_____Boxes, _____Trucks, _____Barrels, _____Baskets, _____Roving Cans,

_____

(Fill in Special Items)

INDIVIDUAL _____

COMPANY _____

ADDRESS _____

_____

for SOUTHERN TEXTILES

SALES BUILDERS

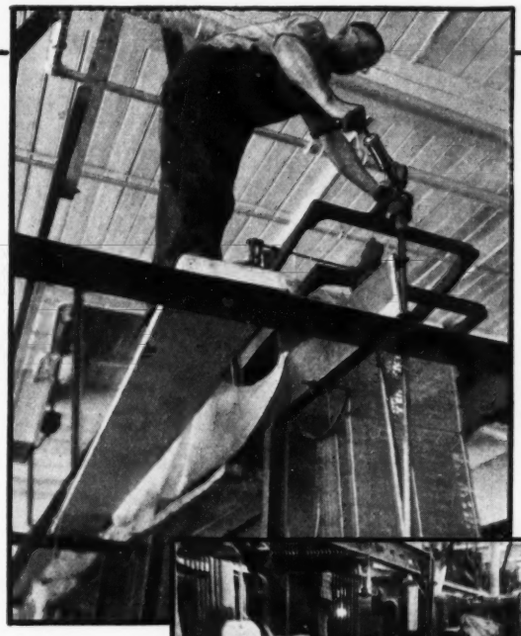
New Designs Reproductions

JACOBS GRAPHIC ARTS CO.
CLINTON · S.C.

SMOOTHER WEAVING!
BETTER "TAKE-UP!"
FEWER "SECONDS!"

When Bearings are Kept Right with

ALEMITE
CONTROLLED LUBRICATION



CONSISTENTLY better weaving on fine goods! And lubrication that keeps bearings from running dry or binding—that prevents contamination and cuts power consumption! These are bona fide results of Alemite Controlled Lubrication as proved on the looms of the Ora Mills at Shelby, North Carolina.

Lubrication every three weeks with the Alemite System and Alemite Lubricants assures smooth, uninterrupted production. Bearing failures are practically unknown. Old-fashioned, lint-filled oil holes are eliminated, and oil-soaked floors and machinery are a thing of the past.

These results are not exceptional—they are *typical* of the textile industry's experience with Alemite Controlled Lubrication. You can save time—save lubricants—avoid bearing failures—and cut down your power costs by adopting this modern method.

There is an Alemite System, power or manually operated, to fit your needs exactly. Modern Alemite Equipment can be installed on your machinery in a short time, at small cost, without delaying production.

ALEMITE
A Div. of Stewart-Warner Corporation
1884 Diversey Parkway Chicago
Stewart-Warner-Alemite Corporation of Canada, Ltd., Belleville, Ontario, Can.

● See how easily Alemite lubricates the universal joint on the lifting arm of a jacquard loom—cleanly and quickly! There are 88 of these looms, all Alemite-equipped, in the Ora Mills, Shelby, N.C.

● Nothing complicated about taking care of the sand roll bearings on a Draper Model K Loom when an Alemite Gun is used. Once in three weeks is plenty for machines of this type at the Ora Mills.

There's a world of important information in our new manual, "The Case of Alemite vs. Friction." Mail the coupon today!

ALEMITE
REG. U. S. PAT. OFF.
CONTROLLED LUBRICATION

Enjoy Horace Heidt and his Alemite Brigadiers on Mondays at 7 P. M., Eastern Standard Time, on Columbia Coast-to-Coast Network

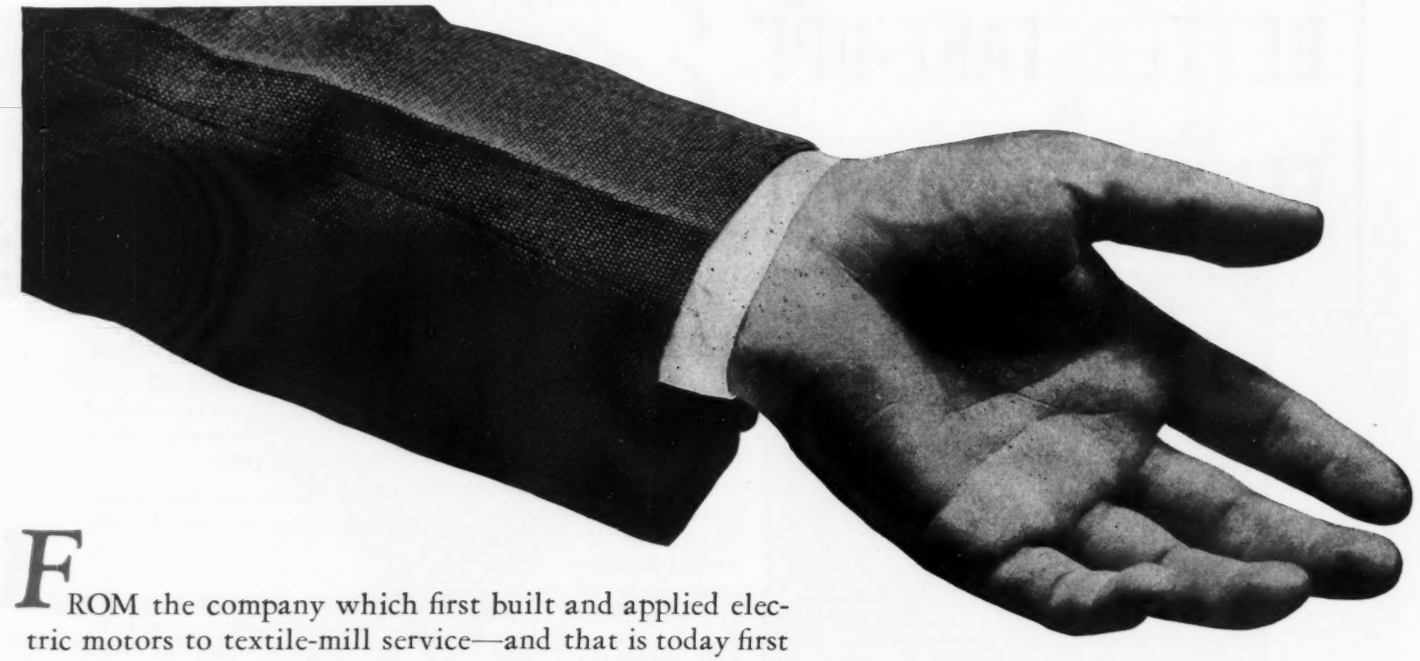
ALEMITE—*A Division of Stewart-Warner Corporation*
1884 Diversey Parkway, Chicago, Illinois — Dept. G
Please send without obligation your new manual, "The Case of Alemite vs. Friction."

Name _____

Address _____

City _____ *State* _____

Within Easy Reach

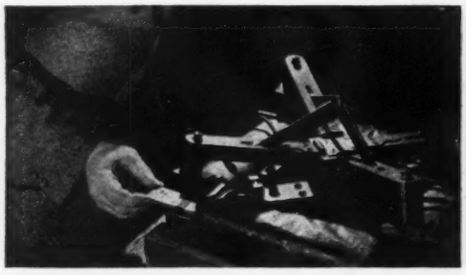


FROM the company which first built and applied electric motors to textile-mill service—and that is today first in the manufacture of electric apparatus designed especially for the textile industry—you can get the loom motor that has *passed all tests* to fit it for weaveshed service.

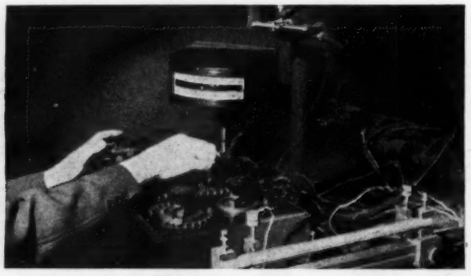
Numerous tests, not only electrical, but mechanical as well—tests of strength, of rigidity, of precision, of quality of raw material—prove beyond a doubt that this motor will perform reliably and economically; will more than fulfill your requirements for a dependable loom drive.

General Electric's intensive testing program assures your receiving a loom motor that will perform year after year at low maintenance expense. It will help keep down your mill costs per pound. General Electric, Schenectady, N.Y.

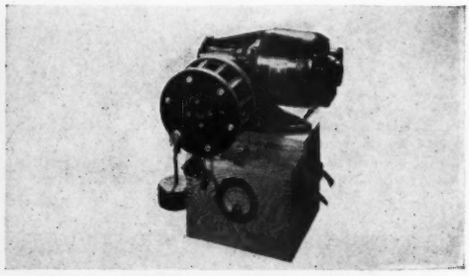
General Electric helps you to get the most for your motor dollar — first, by manufacturing a motor designed and constructed for unequalled performance; second, by the convenience of G-E service. No other electrical manufacturer offers so much in service, conveniently available, from sales engineers, service shops, warehouses, and electrical dealers. It will pay you, in motor performance and in time saved, to rely on General Electric textile motors and General Electric service.



EPSTEIN TEST—Silicon steel for rotor and stator laminations is given Epstein test to assure high permeability and low core loss



CONDUCTIVITY TEST—Each batch of aluminum for rotors is given an electrical conductivity test to maintain the high standard of performance of G-E cast-aluminum rotors



ABRASION TEST — Enamel wire is tested for abrasion resistance on this machine, which scrubs the enamel film with superhard Carboloy bars

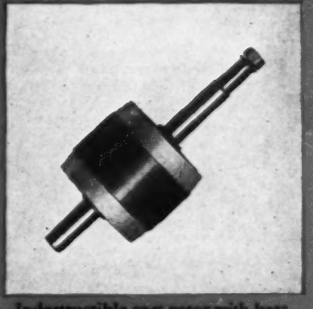
GENERAL

# of Textile Mill Men

DEPENDABLE, LOW-COST OPERATION from the G-E LOOM MOTOR

Strong, cast-iron end shields provide accurate bearing alignment and uniform air gap

Riveted frames of the G-E loom motor have the advantage of rigidity and strength at low weight per horsepower



Indestructible cast rotor with bars and rings cast as a unit, eliminating joints and providing trouble-free operation

Waste-packed bearings, accessible from the outside, reduce servicing costs. Removal of end shield unnecessary for examination of packing

STRENGTH TEST — Shaft and frame materials are tested continually—tested to destruction to make sure that they meet rigid physical property standards

CARBON TEST—Steel and cast iron are tested for carbon content by burning in high-temperature electric furnaces. Carbon content is an index of strength

020-257

E L E C T R I C

VALUABLE ARTICLES

A- **"Roving Frame Cones," "The Compound As Applied to Cotton Roving Frames,"** and **"Roving Frame Tensions."** These three articles by Fay H. Martin go into the reason that roving frame cones are concave and convex, describe the "mysterious" compound, and explain the tension at the start and finish of bobbins on roving frames. The three articles are illustrated and are written in a simple manner that even the beginner may grasp. **Price for set of three—35 cents.**

B- **"A Study of the Twister Ring."** This is a five page discussion of wet twisting, dry twisting, cleaning band rings, selecting the proper ring size, and method of lubricating twisting rings. It is illustrated. Figures and practices are included based upon current mill practice under varying conditions. **Price—20 cents each.**

C- **"Theoretical Twist versus Actual Twist"** by A. F. Bissonnette. Here is a discussion on figuring twist, difference in amount of twist on upward and downward stroke of rail and a letter in which a contributor takes issue with author. A good article for overseers and section men in spinning room to read and discuss. **Price—20 cents each.**

D- **"A Practical Analysis of Large Package Spinning."** In which the author takes the matter of large package spinning apart to see what makes it tick. **Price 20 cents each.**

E- **"The Spinning Ring."** This is a practical discussion of spinning rings which will add to the knowledge of the reader on this subject. It tells briefly how rings are made, how to select the right rings for certain work, and discusses the tendency toward narrower flanges. **Price—20 cents each.**

F- **"Some Textile Machinery Applications of Variable Speed Drives"** by H. H. Iler. Here a prominent southern operating executive describes a number of applications of variable speed driving mechanisms to textile manufacturing; he gives his experience in the cotton mill and finishing plant with one type of equipment for this purpose. **Price—25 cents each.**

G- **"Uses and Advantages of Anti-Friction Bearings on Textile Machinery."** An eight-page illustrated discussion of anti-friction bearings in the textile industry. **Price—35 cents.**

H- **"Straightening Needles for Full-Fashioned Machines"** by B. D. Gaddy. Here is how a leading hosiery manufacturer instructs his knitters to straighten needles. **Price—20 cents.**

I- **"Improvements in Equipment and Methods of Boarding Hosiery"** by B. D. Gaddy. The same author gives some practical discussions and suggestions on the operation of boarding. **Price—20 cents each.**

J- **"Eliminating 'Washboard' Effects in Manufacturing Ringless Hosiery"** by Henry W. Hoffmann. This will be an asset to the library of any hosiery manufacturer. It goes into buying of silk, soaking, twist and its import, coning and the proper settings. **Price—20 cents each.**

K- **"Sizing Hosiery from Full-Fashioned Machines"** by B. D. Gaddy. This is a condensed discussion of the problem of preventing uneven lengths in hosiery. **Price—20 cents each.**

L- **"A Seamless Hosiery Cost Method"** by Fred T. Gaines. Every seamless manufacturer, especially those making half-hose, should study this article. It gives in a complete and clear manner a reliable method of estimating costs. **Price—30 cents each.**

M- **"Warp Breakage—A study of Its Importance and Elimination"** by Albert Palmer. Some of the causes of loom stoppage and a discussion of knots and their proper use. **Price—20 cents each.**

N- **"Leno Weaving and Designing"** (in four parts) by Thomas Nelson. This series covers the elementary designs and the subsequent developments in the leno field. A 14 page discussion, illustrated, that men in this work will find instructive. **Price—60 cents each.**

O- **"The Importance of Cotton Classing and Grading at the Mill"** by H. H. Willis. In which the author points out the value of a good cotton man and gives a description of grade, length, and strength of cotton. Executives should look this discussion over. **Price—25 cents each.**

P- **"The Mill Village Problem."** A discussion of employee home ownership, labor turnover, and maintaining community standards. **Price—20 cents each.**

Q- **"The Faith that is within Us," "Dynamite or Leaven?," "Not So Different,"** and **"For Value Received."** Here are four essays by Marjorie A. Potwin, Ph.D., which discuss the labor situation in Southern mills. **Price individually—25 cents. For all four—70 cents.**

Now Available In Pamphlet Form

A number of articles that have appeared in recent issues of COTTON created much interest and favorable comment throughout the textile industry, with such a demand for extra copies that they were reproduced in pamphlet form.

These pamphlets provide a source of up-to-date, practical and valuable information that will be found usable in every-day textile mill operation. They are available, so long as the supply lasts, at the prices indicated.

Designate pamphlets desired by alphabetical letter. Send cash with order.

EDITORIAL DEPARTMENT

COTTON

Serving the Textile Industry

GRANT BLDG., ATLANTA, GA.

DAYTON COG-BELT DRIVES ARE RUGGED DRIVES

The Dayton Cog-Belt is as tough as a hippo for brute strength jobs. No other belt has such ruggedness and endurance. No other belt can stand up and take punishment like the Dayton.

This is because of the patented, laminated construction of the Dayton Cog-Belt. Layers of cord cable fabric are welded into the heart of the belt. These cords are applied and "cured" under tension, eliminating stretch and minimizing adjustments during service.

But that isn't all. They are "built-to-bend." The greater lengthwise flexibility of Dayton Cog-Belts, their extreme crosswise rigidity, their freedom from bulging and distortion—all contribute toward greater ruggedness and longer life.

The many advantages of Dayton Cog-Belts are graphically illustrated and clearly explained in our big new book, "The A B C's of V-Belts." A copy will be sent you upon request. Write today.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

World's Largest Manufacturers of V-Belts
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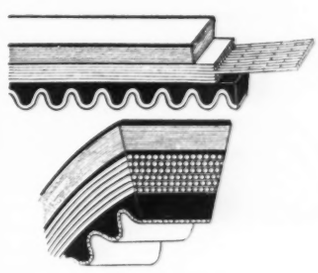

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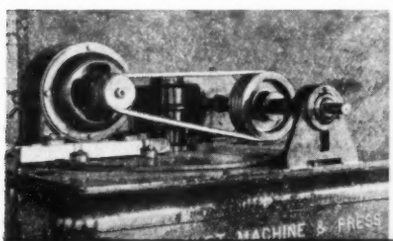

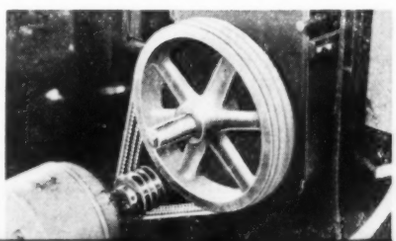

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JUL 22 1936

COTTON

Vol. 100 JULY, 1936 No. 7

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COTTON

July,
1936

LOOM LINING,

An important—though often neglected—function of loom maintenance, which will be an aid toward decreased seconds, increased production, and less supply cost . . . . . .

By J. F. Culpepper

LOOM LINING to most mill men is not even considered as a necessary evil. In fact, this job is hardly considered at all until it suddenly occurs to someone that the looms haven't had a straight edge on them for some time and perhaps this may be the cause for seconds and low production. It is work that is usually put off until everything else has been taken care of and until prosperity has come from around the proverbial corner again.

This is perhaps natural because the actual benefit derived from lining looms is hard to see. It is not like replacing a cam shaft, overhauling the take up motion, or replacing a broken picker stick—the results of which may be seen immediately upon pulling the shifter handle on. It is more like a student looking far into the future, using his spare time for good reading, but selecting from various fields for his study; not in order to prepare himself for a definite discourse on a subject some day, but just to make himself informed should he need to be. So it is with loom lining. We can usually *make* the loom run without lining it, but there is a greater ultimate reward if this is done. The same student could get along without his reading in spare time, but he is much better qualified by having done it.

Preparing the Loom for Lining

There is no set standard for lining looms, but I shall attempt to outline the method we use in our plant. Should any reader have different ideas on the subject I would welcome them through the columns of COTTON. I shall take up the processes in loom lining in the order in which they are performed; namely, preparation of loom for lining, putting on new raceboard, lining end plates to raceboard, squaring of lay on swords, squaring of reed, and lining of box backs.

In preparing the loom for lining, after having first laid the cloth back behind the harness, it is best to remove the box fronts, backs, binders, reed cap, and pickers. This provides a clear field for the work.

In most raceboards there are both screws and raceboard nails or sprigs holding it in position on the lay. We first remove the screws and leave the nails holding the raceboard; then place a true reed in the groove and fasten the reed cap down. We lay the new raceboard over the old one, making certain it is flush on both ends with the old one, press the new one against the reed, and with nails or sprigs, fasten the new board to the old. We endeavor to drive the nails straight down instead of at an angle so that the boards will not tend to slip later in the process of lining. Five or six sprigs should be enough to hold the boards together without any slip whatsoever.

At this point I might add that some liners place a piece of thin paper between the new board and reed before tacking the new board to the old one. This is to take care of whatever slips might occur after nailing, but as stated, if the nails are driven straight down the paper will not be necessary. The new board is now nailed to the old board, which is itself nailed to the lay. Now the old raceboard should be pried from the lay with a screwdriver, bringing the new raceboard with it. This is where the driving of the nails straight down plays such an important part, because we now have the new raceboard in *exactly* the same position as the old one.

We then turn the board over and drill through the holes already in it into the new board. This makes the holes in the new board correspond with the screw holes already in the lay. It would be a waste of time and also quite difficult to make new holes instead of using those already in the lay. Should the liner attempt to mark the holes on the new board with a pencil and then drill them, he is likely to be off a fraction of an inch which will cause the new board to pucker or rise when the screws are fastened down.

After drilling the new board, we separate the boards and counter-sink the holes in the one to be used on the lay. These holes should be deep enough so that the screws will take hold in the lay and also deep enough so that the heads of the screws will not protrude as the raceboard wears in time. The board is

now ready to be put on the loom.

It should be remembered, however, that the reed and reed cap are still on the loom after the raceboards are taken off. For convenience, these may be removed, as the holes just drilled will place the new race board in the correct position. Here it is advisable to get the lay smooth where the race-board fits by sandpapering it slightly.

We next place the new raceboard on the lay and set the screws in the holes. It is best to tighten them gradually, one at a time, instead of fastening one screw down completely, as the latter method will pull the raceboard more in one place than in another.

When the screws are down, a 24-inch straight edge is used to align it. Should the board be only a very little out of line, sandpaper may be used to correct it, but if it is off enough to do serious damage to the shuttle, the screws should be loosened and paper or cardboard inserted under the board to bring it into a true position. Should one place be higher than the rest, the board should be taken off and the lay either scraped or sandpapered enough to bring the raceboard level.

Once the raceboard is level, we further fasten it to the lay with sprigs or raceboard nails. One nail between every two screws is sufficient. The heads of the nails should then be driven well into the board with a small punch. We are now ready to proceed with the lining of the loom.

The end plates must be aligned with the raceboard. Before beginning, however, the plates should be taken off and the trash and lint that has accumulated through the years scraped off. If this is not done it will be difficult to line the plate properly, as every time a screw is loosened the lint will be moved and cause either a high or a low place on the lay plate.

There is very little to be said concerning just how the end lay plates should be aligned, as only experience will give the loom liner true results. A new man will find loom lining quite provoking, while one who is experienced at the work will be able to estimate immediately just how much the plate should be adjusted.

After the plates are aligned with the raceboard and screwed down, a stove bolt should be sunk in the plate at the front, slightly behind and between the screws on either side. It is here that the plate tends to rise most, and where more damage may be done should it come loose. It must be borne in mind, though, that when this bolt is tightened the plate will be pulled down below the level of the raceboard at this point. Enough packing should be placed under the front of the plate to compensate for this difference. Quite often it is necessary to try several times before getting the correct alignment, but since this is really the most important place of all, the time is not wasted in getting it correctly fitted. Should the plate be left lower than the raceboard, the shuttle will rise upon leaving the box and will either be thrown through the top shed or be given a rocking pick similar to the movement of a boat, all depending on the difference in the alignment. The short straight edge is most useful in lining the front of the plate. By sliding it along the plate to the raceboard, the difference in the alignment of the two may be easily felt.

Lining the Box Plates Requires Patience

At this time I shall bring up a controversial point among loom liners. Some claim that the raceboard and end plates should be perfectly aligned all the way across, from end to end. Others insist that the end plates should be slightly raised on the outside end (where the binders are affixed) to take care of the loom's power.

Both methods have been tried in our plant and good results obtained from each.

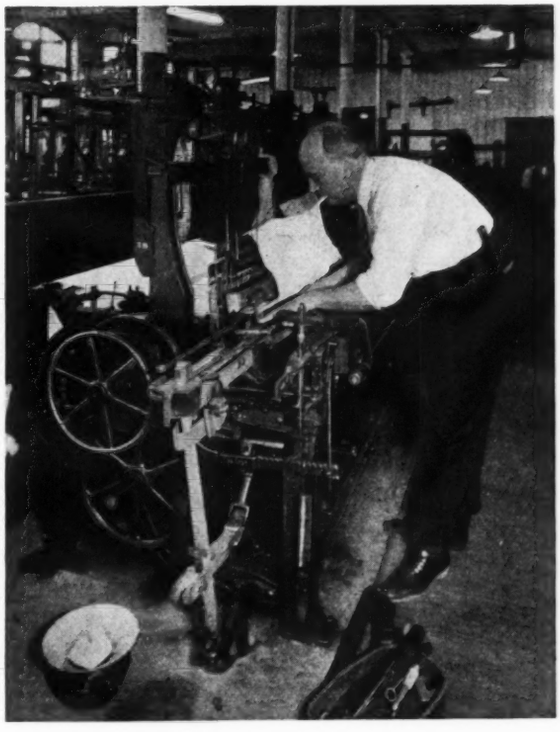
Don't Forget to Square the Lay

When the end plates are aligned with the raceboard, the next step is to square the *lay* on the swords. I have seen some of the most experienced loom liners in the mills overlook this important point. It is usually just taken for granted that the lay is square on the swords and that there is really no way for it to be anything but square. This is a misconception. Testing it for squareness may be accomplished by placing the reed square on the end plate where it touches the sword, and pressing it against the sword. If the lay is out of square, then it may be brought into position by loosening the bolts holding it to the swords and packing either behind or under it as the condition demands.

This squaring of the lay on the sword should be done *before* squaring the reed to the raceboard. Should the loom liner square his reed first and then have to square the lay, his reed would be thrown out of square and the work would be wasted. Whereas, should he square the lay first, he would not be called upon to move it again. Also, it is essential to square the lay on the swords while the box backs are off. With the backs on, there is no way of telling if the lay is out of square or if there is some other defect with the lining.

Then too, if the loom is giving trouble, few men will think to remove the box backs and test the lay for squareness. Shuttles have been known to be cut with the loom perfectly in line but out of square on the swords. Squaring the lay on the swords is just one of those forgetables that we never think of; that is why I suggest taking care of it while the loom is torn down for lining.

When this is done, the reed should be squared to the raceboard. This is important but very little can be written on it. I do think, however, that it is best to use the new true reed for squaring instead of the one that has the ends drawn through it. Should the reed cap have to be built up in order to square the reed, some material should be used that is stout enough to withstand the loosening and tightening of the cap when a warp is tied on. In our plants we use the composition from old roving cans and secure it with nails or heavy tacks. Of course, if the reed is overfaced, there is simply a little rasping to be done to bring it true.



To Prevent a Cut Shuttle, Line the Box Back

In squaring the reed, it is sometimes necessary to take just a little off of the raceboard where it fits closely to the groove. This should not be scraped as this is likely to ruin all the work already done. Much more even results will be secured by the application of a little sandpaper.

The importance of the mill's securing and maintaining loom reeds of a standard size is emphasized in connection with loom lining. If reeds of various depths are used, at each change of the warp there is a new aligning job to be performed in order to prevent a cut shuttle and a poorly running loom. It is a good rule to have one person designated to order and inspect all reeds, and most certainly he will find it profitable to select a reliable reed manufacturer with whom to trade.

We now bolt the box backs on, and line them up with the straight edge. If they are lined with the reed from top to bottom, then the backs will automatically be square with the end plates. In the old days, some loom fixers filed off the front of the box back to move the filling grate instead of moving the lay as they should have done. This box back should be rounded or beveled at the grate in order not to cut the shuttle when it enters the box. No matter how well the boxes are lined, there will be a tendency for the shuttle to be cut if the box backs are blunt at this point. The liner should look for this deficiency when he sets the loom up.

Possibly someone will raise the question as to how long it should take a liner to finish one loom, or how many a liner should "get" in an eight-hour day. This all depends upon the impediments or obstacles he runs into. No two looms can be aligned exactly alike. It depends, too, upon whether the liner tears the loom down and sets it up himself or whether the section man does this part of the work. The experience of a liner plays a great part, also. Sometimes a loom liner can tear down and line two looms a day, but five hours is about the normal time for this work to be done in when the liner does all the labor. If loom lining is left for the regular section man to do in his spare time, the loom may stand several hours longer.

The operative who really is able to see the benefit of loom lining is the loom fixer. If he has three or four looms that he has to go to every day, he is continually worried. But if these looms are lined, then his "Jonahs" are gone and he can devote his time to real loom fixing. If anyone doesn't believe this, I suggest that he watch the loom fixer take on a new interest when he has one of his bad raceboards replaced and the loom aligned correctly.

The Arkwrights, Inc., Receive Tests

AT THE Blowing Rock convention of the Southern Textile Association last month, a report was heard from the organization's research affiliate, The Arkwrights, Inc., with T. W. Mullen, president of the Arkwrights, telling what had been done. The research committee of The Arkwrights, Inc., appointed at the 1935 convention in Myrtle Beach, immediately began work in an effort to revive interest in practical testing; the committee assigned a test on yarn variation to senior students in each of the southern textile schools. Each school was given the same test, with a different yarn number being assigned in each case.

Prior to the Blowing Rock meeting, the research committee had received completed tests from the assigned students at two of the schools, the Georgia School of Technology and the N. C. State Textile School. These two reports were tentatively approved. No tests were made at the other schools in the South.

Any mill man interested in conducting a practical mill tests as a requirement for membership in The Arkwrights, Inc., is urged to communicate with any member of the research committee, which is composed of: Culver Batson, c/o Consolidated Textile Corp., Lynchburg, Va., chairman; Marshall Dilling, c/o A. M. Smyre Mfg. Co., Gastonia, N. C.; and Robert W. Philip, Editor COTTON, Atlanta, Ga.

Let's Look at the Concession Stand

Do YOU frequently feel tired late in the morning and again late in the afternoon? Are you often touchy, irritable or prone to make errors at these hours? The chances are that you are not tired but "hungry".

This opinion seems to be borne out by two distinguished physiologists—Dr. Howard W. Haggard and Dr. Leon A. Greenberg of Yale University. For six years they have made an intensive study of when we should eat. Their general conclusion is that normal, healthy persons, for greatest mental and physical efficiency, should eat five meals a day, possibly six. Industrial workers in their tests showed a 14 per cent increase in efficiency by taking five meals—two light meals mid-morning and mid-afternoon—in addition to three regular meals.

These findings should be of particular interest to textile mill managers. A great many mills have al-

ways provided for the serving of cold drinks, tobacco, light refreshments, etc., even back in the times when the worker's day was broken by an hour for dinner. The subject should be of especial interest now with the larger proportion of mills operating with a straight uninterrupted eight-hour shift for the employees.

It is said that an army travels on its stomach. Generally speaking, industry has been prone to overlook this important means for keeping employees happy and efficient at their work. Too many employers seem to feel that a refreshment service or concessions stand in the plant is a necessary evil—unwillingly tolerated—that refreshments, instead of being made readily accessible to employees, should be made difficult or impossible to get while on the job, because of the time wasted for "refreshment time".

The textile industry has been progressive enough within recent years to discard many obsolete practices and machines. Let's get the right perspective on this matter of refreshments. Perhaps there is an opportunity to turn an old bug-a-boo into an ally. Perhaps our English cousins are not so far wrong in taking a few minutes off for "tea" each day. At any rate, let us be open minded—for we exist only by progress.

No need to ask what employee good will is worth. Isn't it logical to assume that properly nourished workers will be more agreeable, healthier, happier and more efficient than if under-nourished? Try it yourself—skip a regular meal and see how it affects your temper, ability and feelings.

Of course it should not be the function of an industrial feeding service to supply heavy meals during work hours—in fact, such meals are neither needed nor desirable. The recent study of the two Yale physiologists shows that we should in most cases not add the two extra meals to our three regular meals, but rather take them from the regular meals; in other words, not eat more but oftener. A glass of milk with a sandwich, small cake or a ripe banana will be found to be quite desirable for the two light meals.

The supervision in a mill has a perfectly natural objection, from the standpoint of the havoc that it plays with machine efficiency, for workers to take 15 or 20 minutes off twice a day to go to a concession stand. This difficulty has been overcome in many mills by locating the central service stand in a remote point, and serving the workers at their jobs from specially constructed portable canteens or carts. These are made to pass easily through 27-inch alleys and are readily handled by one operator; yet they are capable of carrying cold soft drinks and milk, cakes, confectionery, ice cream and other necessary food items.

A number of years of experience and study has shown that an employee seldom consumes more than a drink or some one food item requiring only two or three minutes to consume. Even while taking these refreshments the operator can still be adjacent to and watch his work.

The scheduling of these portable canteens to conform to the machinery schedule is important and should receive considerable study. If a certain department has a definite schedule for cleaning the frames or any other periodic work causing the operators normally to be idle for a few minutes, for example, the portable canteens should be routed to take advantage of this idle or slack time. Many other factors must also be considered in effectively and efficiently routing the canteens, such as work hours, percentage of women workers in a given department (women require food oftener than men, for highest efficiency), intensity of physical exertion, etc.

The first consideration of this service should be

(Continued on page 60)

Robert West Shows Textiles' Need of

Precision and a Stabilized Wage-and-Hours Structure

By Robert R. West

President, Riverside & Dan River Cotton Mills

THERE IS an increasing accumulation of evidence which indicates that the successful operation of cotton mills is becoming a business of precision. In using the word "successful," I have in mind, on the part of our business, that ability to pay its way by earning a return on the investment involved, that ability to pay adequate wages to the labor which it employs, and that ability to keep itself sufficiently strong to withstand the shocks which tend to disrupt its continuity. A little reflection will lead you to endorse that statement. Even a casual reading of the history of the cotton textile industry, particularly in the South, reveals that much of it was started with the sole purpose in mind of providing employment for a great number of people who had nowhere to turn to earn a livelihood. It was found that available labor readily adapted itself to the mechanical processes of cotton fabrication. As our country grew in population there was found a ready market for cotton products, to fill the absolute needs for clothing and fabrics required for growing industrial uses. Indeed it was found that the product of our increasing number of looms could be placed in foreign countries at a competitive advantage. This combination of circumstances proved to be a veritable bonanza. It made possible the introduction of a great industry into a predominantly agricultural economy.

Desires, Not Needs, Govern Production Now

A candid review of the situation as it exists today, however, compels us to conclude that quite a different set of circumstances dominates the production and distribution of cotton textiles. Whereas, during that period of growth we were with difficulty supplying the needs of our population, today our employment and profitable operation is dependent upon the *desires* of our population. The actual need for cotton textiles will not run our machinery, will not employ our labor, will not render a profit to the industry. It is that excess of demand over and above actual needs upon which we are dependent, and it is at that point that we meet the competition for the consumer's dollar which he has to spend over and above his actual needs. For what will the consumer spend that extra money—a new gadget for his automobile, or an additional shirt? Another pair of sheets, or an installment on the electric refrigerator? A cotton dress, or a remote control for the radio? The product of cotton textile mills must be sufficiently attractive to hold its own in that type of competition. Such a situation immediately reflects itself in manufacturing operations. Production of merchandise which will attract that sort of buying must be conducted with skill, imagination and precision. It is indeed a far different problem than that involved in mere turning out goods which will be accepted by virtue of sheer necessity. Such competition requires advanced manufacturing technique, skilled operation of machinery, superlative quality and extraordinary flexibility of organization.

Bear in mind, also, a certain condition which has arisen in recent years. The southern cotton textile industry no longer operates under the sheltering wing of having a large part of the available supply of goods manufactured under conditions involving higher labor costs. To a preponderant extent competition at present comes from equal-labor-cost sources. This fact is important to the manufacturer. It restricts his latitude for waste, error and mediocre performance. It puts upon him the necessity of perfection in his technical operations, extraordinary competence on the part of his working force, unusual diligence in the pursuit of better methods, careful control, flexibility of productive processes; in short, an operation of skill and precision.

ROBERT R. WEST, the author of the accompanying timely discussion of current industry problems, heads one of the industry's largest units, as president of the Riverside & Dan River Cotton Mills, Inc., Danville, Va. . . .

The Limits on Our Operation

Let us review the limits within which we must operate. The difference between the price obtainable for our product and the cost of raw materials going into that product—that amount of income from which must be obtained, wages, operating expense,

This is an abstract of the address delivered by Mr. West at the Southern Textile Association convention, Blowing Rock, N. C., June 19, 1936.

THIS timely discussion by Bob West, on why cotton-textile manufacturing is a precise operation and the need for stabilized wage-and-hour policies for the industry, transcends in interest the immediate group before whom it was presented. He gives, particularly in his discussion of hours and wages, a straightforward presentation of the philosophy of that important group in the industry which is endeavoring to hold to the gains made under the code . . . . . .

◆ ◆

depreciation of plant and equipment, and profit—the so-called manufacturing margin—has become so narrowed that there is little or no room left for faulty operation, no room for waste, no room for those multitudinous variations from a standard which were formerly permitted when more generous margins prevailed. The force of circumstances has made it necessary for the mill manager to hew straight to his line and be constantly on the alert for those variations, mistakes and errors, so that he may avoid them, lest he find that his manufacturing costs do not fit within the available margin. This situation is indeed a pressure on management. We often complain about it, wish it were not so continuously burdensome, philosophize over the good old days, and anticipate with a certain nostalgia, their return. The fact remains, however, that we, as managers of manufacturing enterprises, are confronted with constantly narrowing manufacturing margins and must so conduct our operations that their cost will fit within the prescribed limitations. The past decade in the cotton textile business has afforded what have been considered substantial margins only on those rare occasions of intense speculative activity. The ordinary course of our business is along paths which permit profit only to those who attain the utmost in technical proficiency. Such accomplishment demands management without waste, either of time, effort, money or material; in short, a management of precision.

Quality and Variety Requirements

Consider next the question of the required quality of our merchandise. Each of us has often sat in his office examining a piece of goods returned because of a scarcely perceptible defect; possibly accompanied by a letter from a customer or salesman, in which, with more or less veiled sarcasm, inquiry is made as to why blind inspectors are employed, and with the request that the mill try making its goods right for a change. Possibly you have had the feeling of the unreasonableness of it; a flaw could be picked in any piece of goods; and that if the salesman were as interested in protecting the interests of the mill as he was in avoiding a row with the customer, things could be much better. Do not be deceived into that frame of mind, however. The demands of the market for the extreme of high quality are not due to any lack of backbone on the part of salesmen. These requirements are due to what the market demands, expects and, more important still, can get. It is a fact to be acknowledged that, fabric for fabric, the demands for quality, excellence of product, are more exacting than ever before and without doubt will become even more stringent. Carelessly produced merchandise will not do. It cannot stand the strain of competition, and it behooves management to so regulate its affairs that its product will be acceptable without question to the highly exacting specifications of market acceptance. The conditions of manufacturing to produce that kind of product demand care, skill and precision of operation.

Next, I suggest to your thought the matter of variety. Who has not argued for the simplicity and economy of a one-product mill? Who, on the other hand, has not been obliged, by sheer force of circumstances, to diversify his product? Time was when machinery could be blocked off onto a certain number and run week in and week out, year in and year out, on that number. Very little such opportunity exists under the conditions which we face today. Styles change with breath-taking rapidity; a time honored product becomes obsolete, unsalable; a new machine gives a product which catches the public's fancy; change must be made to meet the ever-changing demands of the buying public. Such a call for variety is not confined to the cotton textile industry. It is apparent in all manufactured products. It is a characteristic of our modern age, and must be accommodated if the producer is to harmonize his operations to the off-take in the market. I am fully aware that change in a cotton mill is a pestiferous bother. It is troublesome; it causes a lot of work, and a great deal of loss motion. It is noteworthy, however, that the ability to produce variety has become an essential ingredient of successful operation, and to accommodate the operation of a cotton mill successfully to the necessary variety of product requires that capacity of management and labor which is marked by skill, understanding and precision.

The Effect of High Speeds and Short Cuts

A further consideration which characterizes the manufacture of cotton textiles in the modern manner and which demands the elements of precision, is that of the higher speeds and short cuts in operation which we have adapted to our processes. These characteristics require a far greater degree of exactness and conformity to standards than was necessary under the lower and more elaborate processes. Three-process roving, for instance, covered up a multitude of sins; sins which if indulged in with single-process long draft roving will bung up a mill in no time, to the despair of help and management alike. The character of yarn for the proper operation of high speed looms is so superior to that required for slower looms that the two are hardly comparable. A weaver operating 15 or 20 looms could take care of two stops per loom hour, but he cannot when called upon to run 70 or 80 looms. A loom fixer used to have to be an artist with a cold chisel and a file to make castings fit, but today castings are face ground to make a perfect fit. The whole tendency of technical development is toward an operation which requires training, skill and precision.

There is no need to further elaborate the matter. I make no attempt to submit an exhaustive analysis of the stringent conditions which force our manufacturing operations to become more precise. Each of you can supply a vast number of additional items. Cotton textile manufacturers today are engaged in a business which demands, for survival, a precision and control of operation, a finesse of management which 15 or 20 years ago was undreamed of. The wide latitude of margins which formerly prevailed are no more. The part of wisdom is to accommodate ourselves to the fact rather than yearn for a return of the good old days.

Such being the case, what are the conditions under which a mill manager can hope to conduct his operations continuously with the required degree of precision? I will not take the time to discuss matters of financing or of merchandising, important as they may be. The interest of this meeting centers on the conditions of manufacturing. It is on the mill manager and his operating organization that the pressure is brought. He is the one turned to first to effect economies; he is expected to reduce expense; under his control are those sources of economy which we have been wont to tap in order to effect the savings necessitated by reduced manufacturing margins; therefore, inasmuch as he has to deal on the one hand with the forces demanding precision in his operations, and on the other hand with the forces upon which he has to rely in obtaining a precise operation, it is to his interest to ascertain the nature and character of the problem with which he has to deal.

The Need for Stable Wage Structure

Permit me to make one or two broad observations. In the first place, it is inconceivable that a manufacturing operation requiring continuous skill and precision can be conducted in an atmosphere of confused and uncertain wage schedules; schedules subject at any moment to the capricious action of some individual. In the second place, it seems to be obvious that no precision industry can rely for its skilled labor wholly on the availability of unskilled labor. People are not born with sufficient skill to operate our expensive high speed and delicately adjusted machinery. Possessing the aptitude, they must be trained; when trained there must be thrown about the job a security of tenure in order to conserve the skill developed. I put in a place of primary importance, therefore, the necessity of developing and maintaining a skilled, stable, responsible and adequately paid work force, if we are to hope for the attainment and maintenance of that type of unerring operation which seems to be necessary to meet the competition we face. The argument in favor of this hypothesis could be elaborated at length and probably to a great deal of profit, but the limitation of time forces me to be brief and merely suggest certain conditions, the presence of which gives a mill manager the opportunity to conduct his operations successfully, and the absence of which causes confusion and detracts from the possibility of a wholesome operation.

One such condition is a stable wage structure having industry-wide recognition and validity. There is nothing which demoralizes our industry so much as periodic apprehension over the possibility of lower priced merchandise brought about by lower wage scales. I am well aware of the opportunities which some mills "enjoy" in the possibility of paying lower wages than those which prevail in the industry. I appreciate the lure of accepting that opportunity to effect apparent economies, but I say to you that taking such advantage is a boomerang of devastating consequence. We do not have to speculate about that or advance it as an academic supposition. The facts of the case are immediately before us and have demonstrated their power within our own experience. The years intervening between the World War and the adoption of the cotton textile code were characterized among other things, by the freedom of textile employers to manipulate wage scales to the satisfaction of each individual employer.

That period of time was also distinguished by the assumption on the part of southern textile manufacturers of the predominating position of the production of cotton textiles. It might be thought that this transfer of dominance from relatively high wage areas to relatively low wage areas would have produced a widened manufacturing margin from which to pay wages, expense and profit. Was such the case? Quite the contrary. During that period manufacturing margins were reduced 50 per cent; textile wages on the average were reduced 30 per cent. It is to be seen that manufacturing margins fell faster and further than wages. That is to say, that freedom of the individual manufacturer to manipulate his wage schedules to suit his own imagined necessity and the tendency to exercise that freedom, caused so much uncertainty and confusion in the markets for goods that it was impossible to support a price structure which would even parallel the reduction in labor costs. We who run must read. The facts of the situation are inexorable as well as clear. They point to the truth that in an industry such as ours disorderly wage schedules irresponsibly manipulated, lead not to profit but to confusion; lead not to possibility of a better managed mill, but to assurance of intolerable labor complications put upon the shoulders of the mill manager. There are many problems in our industry vexing us which are beyond our control, but this matter of wage schedules is within our control and I put forth as a primary consideration of proper manufacturing conditions a stable wage structure, supported by a basic minimum wage and held together by a framework of occupational differentials properly reflecting the skill required in the various occupations, a stable structure conscientiously adhered to by all units of the industry.

Corollary to the question of wages is the question of hours of labor. Much of what I have had to say about wages holds true in regard to the number of hours worked as a standard weekly operation. I am one of those who believe that 60 hours per week, or 55 hours, or 50 hours, required of employees as a reg-

(Continued on page 78)

Manufacturing Cotton Waste Yarn by the Woolen System

By J. H. Isham

HERE is given a clear description of the processes used in the carding and spinning of cotton waste yarn by the woolen system. Cotton mill men particularly will be interested in this, as it explains the differences as compared with regular carding and spinning; and also describes the latest developments in woolen system carding for cotton . . . . . .

THE processing of cotton waste is a complex problem and most cotton mills are familiar with most phases. However, the woolen system of handling cotton waste is not so generally known and should merit some few words of explanation.

It must be remembered that most of the filling yarns in part-wool blankets and in a great many cotton blankets—particularly where India and China cotton is used—are made on the woolen system. The advantage of the woolen system in this case is that it gives a round, full, soft thread that can be readily napped and which adds depth to the finished product. It can generally be said that where a fabric is to be napped the woolen system gives better yarn for this purpose.

The woolen system does not tend toward parallelization. On the contrary, the fibers are deliberately crossed by the intermediate feed so that the resulting roving or roping is a conglomerate mass rather than a series of paralleled fibers. For this reason woolen system cotton waste yarns are not as strong as those made on the cotton system. It must be further remembered that the woolen system does not remove so much short stock and vegetable matter from the cotton waste as is done on the cotton system using a regular revolving top flat card.

When woolen mills speak of a set of cards they ordinarily mean 1 automatic Bramwell type feeder, 1 metallic breast, 1 first breaker card, 1 intermediate feed, 2 finishers, and either a ring doffer front or tape condenser. It has been found, however, that all of this carding is not necessary for cotton waste, and the modern cotton waste card consists ordinarily of 1 automatic feeder, 1 small metallic breast, 1 first breaker, 1 intermediate feed, 1 finisher card equipped either with a ring doffer or a tape condenser.

Whether for coarse numbers or relatively fine, the action of the cotton waste card is the same. The stock is thoroughly cleaned, opened and blended the same as when running on the cotton system, but is not made into laps as no pickers are required in the woolen system. Instead the stock is hand fed into the hopper of an automatic feeder at the back of the card. As long as this hopper is kept full, the feeder delivers a pre-determined amount of stock to the feed rolls at regular intervals. Fig. 1 shows the Bramwell type automatic feeder which is used on woolen type cotton waste cards.

The Bramwell Automatic Feed.

The stock is taken from the hopper by a vertical spike apron which drops it into the pan *A*. This pan is part of the weighing device and when the pre-determined amount of stock is in the pan, the weight of the stock causes the pan to drop slowly which disengages the lifting apron mechanism. When the push board *B* has returned to a starting position after having pushed the stock up toward the feed roll the double bottom of the pan *A* opens, and the stock is dumped on to the feed apron; the double bottom of the pan closes, and the cycle of operation is repeated.

While the automatic feeder method is perfectly satisfactory for the woolen system it could not generally be used to replace laps. Inasmuch as on the woolen system the stock is fed into the feed rolls more or less in bunches or tufts, a metallic or tearing breast (see Fig. 2) has been inserted at this point in the cycle of operation. The ordinary metallic breast con-

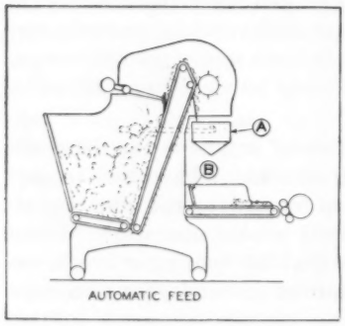


Fig. 1.—The Automatic Feed

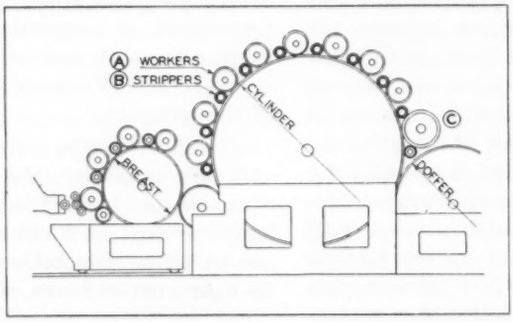


Fig. 2.—The Breast and Card

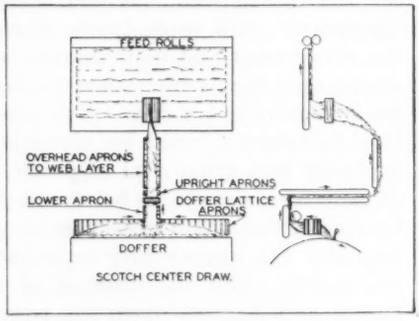


Fig. 3.—The Scotch Center Draw

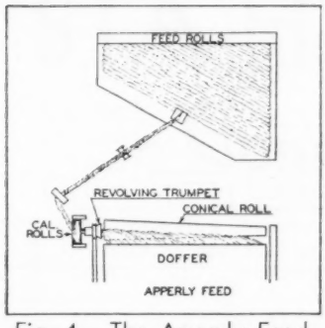
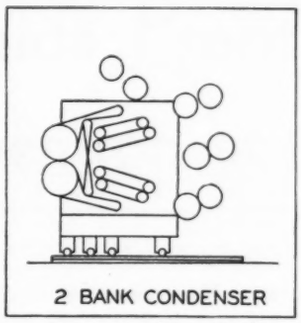


Fig. 4.—The Apperly Feed



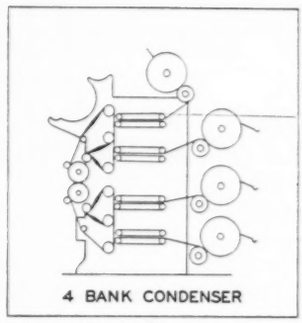


Fig. 5.—A Two-Bank and a Four-Bank Condenser

sists of a cylinder with three workers and strippers, all clothed with metallic wire. The licker-in delivers the stock to this metallic cylinder. Metallic workers remove any bunches of hard material, pass them on to the stripper and then back to the cylinder, always tearing them apart without, however, appreciably injuring the staple, so that when the stock is eventually delivered to the tumbler, to be in turn passed to the cylinder, nearly all of the bunches or lumps have been torn apart and the stock is uniformly opened ready for carding.

The card cylinder revolves in the same direction as it does on cotton cards, but the stock, instead of passing through revolving flats, on this system passes through a series of rolls arranged in pairs. (See Fig. 2). Each pair consists of a worker and stripper; the worker being shown at *A*, and the clearers or strippers at *B*. The number of workers and strippers varies with the type of work to be done and the diameter of the cylinder.

The carding is accomplished by the action of the worker against the cylinder; the stripper merely acting as a clearer to remove the stock from the worker roll and return it to the cylinder. There is a repetition of this through the entire series of rolls to the front of the card where the fancy roll, *C*, revolving at a surface speed of approximately 30 per cent greater than that of the cylinder, raises the stock in the cylinder wires so that it can be piled up on the doffer wire and be carried away on this roll; this action being exactly the same as on the cotton card, and the web is removed in the same manner by an oscillating comb.

In modern installations the Scotch intermediate feed (Fig. 3) is used to convey the stock from the first breaker to the second breaker. The web coming from the first breaker doffer is gathered together at the center by allowing the comb to drop the web onto two lattice aprons revolving toward the center of the doffer. This loose bulk or web is then conveyed between two lattice lifting aprons on to an overhead conveyor, which, in turn, delivers this wide web between a pair of carriage rolls traversing width-wise of the card where it is delivered in a series of layers piled up so that one layer overlaps the next one and is eventually delivered to a pair of feed rolls on the finisher section of the card.

An Apperly or diagonal feed is sometimes used (Fig. 4), although this method is very rapidly on the wane and is being replaced by the Scotch feed. Where the Apperly feed is used, the first breaker doffer comb delivers the web on to a revolving conical roll which rolls the stock or web up into rope form. This stock is carried through a twister tube and a pair of mangle rolls which impart a false twist and give a corkscrew effect to the rope. This is then carried by an overhead conveyor to a carriage table on the finisher feed table. Here the strands or ropings are laid side by side diagonally across the width of the card; the feed table carrying these strands into the feed rolls.

You will note from the illustration that there is a direct crossing of the fibers to get away from parallelization.

The finisher card repeats the process of carding as shown above on the first breaker.

If yarns finer than 2.50-hank are to be made, a tape condenser will probably be used to divide the web from the finisher doffer into sections and condense the resulting ribbons into a roving which is to be spun. The two-bank condenser was originally designed to handle cotton and cotton waste. It has been found, however, that the four-bank tape condenser permits a wider range of numbers, delivers an evener roving and permits a greater production, and, on new equipment is almost entirely standard, although there are a great many two-bank tape condensers giving excellent service throughout the country. (See Fig. 5).

The web from the finisher doffer is run between a pair of grooved dividing rolls in which run a series of leather tapes which split the web into a series of ribbons or slivers. These tapes then carry the slivers of roving to the nip of rub aprons which condense the ribbons into roving. These rub aprons have a forward motion as well as a side oscillating motion. The condensed roving is wound on to spools and is ready for the spinning. The side ends or outside ends are

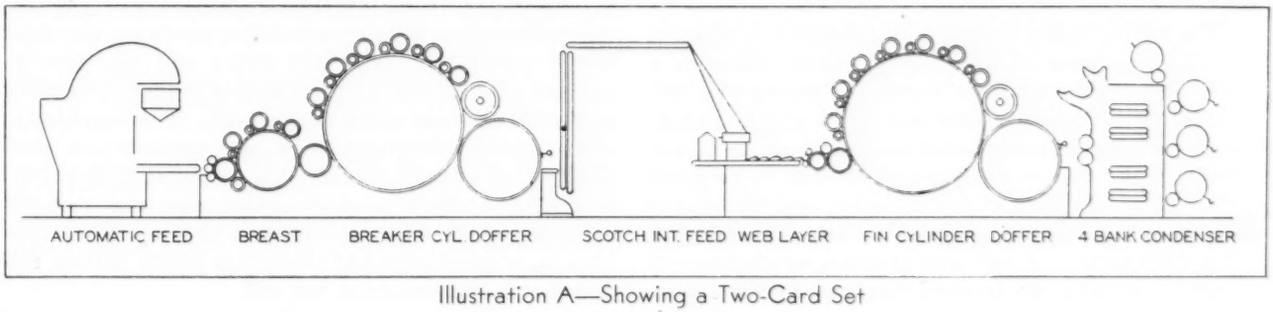
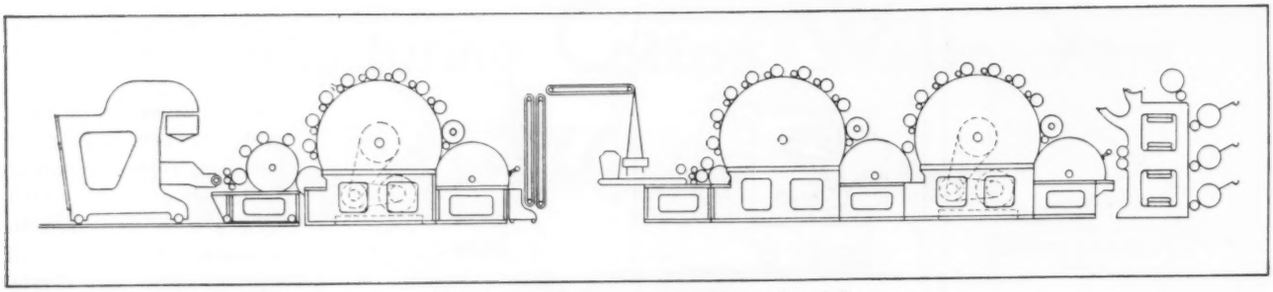
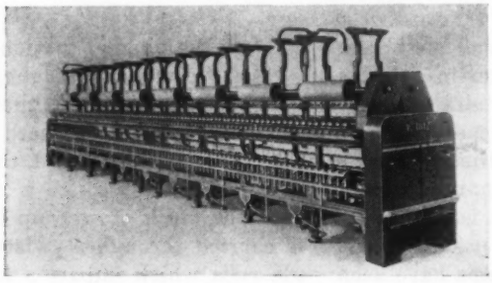


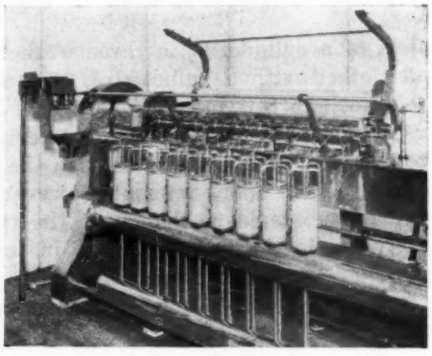
Illustration A—Showing a Two-Card Set



Illustrations, courtesy Whitin Machine Works

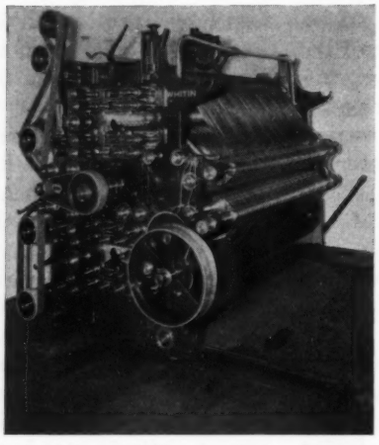
Illustration B—Showing a Three-Card Set

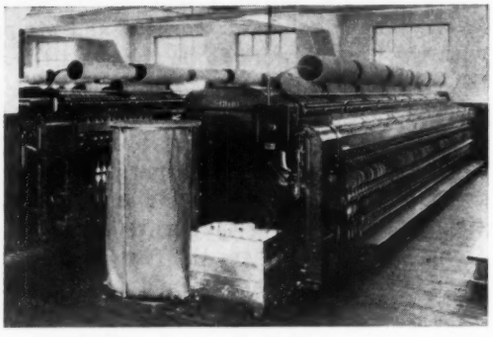




Above, a jack spool spinning frame; below, a 60-inch tape condenser . .

Above, section of flyer spinning frame; below, wool spinning frames





wound off on to waste drums or are blown back into the hopper of the automatic feeder. These salvaged ends are always uneven and the yarns spun from them could not be used.

Where particularly trashy cotton waste is to be run and made into coarse numbers, ring doffers are still used because the dirt and trash in the cotton waste is likely to cause the life of the tapes on tape condensers to be very short, and, in cases such as these, the ring doffers are really preferable.

With a single ring doffer front, usually 30 good ends are taken off, the doffer itself being a 30-inch doffer clothed with card clothing rings separated by leather filling-in pieces so that the stock is delivered by the cylinder onto these doffer rings which in turn deliver it over a set of grooved rolls to the condenser aprons in the form of a ribbon or sliver. The same principle applies to the double ring doffer, but with such, usually from 60 to 72 good ends are taken off. The condensing operation is the same as that on the tape condenser.

The roving taken from a tape condenser is spun on one of three types of spinning machines, either on a woolen type mule, which is rapidly becoming obsolete, or on a continuous wool spinning frame which is capable of putting as much draft in the stock as it will stand (in the case of wool this draft may be as much as 2, but in the case of cotton waste ordinarily it is around 1.25); this type of spinning frame is equipped with stationary ring rail and spindles which traverse up and down and can be used for large package spinning for warp, or to spin directly on loom bobbins for filling.

In some cases a jack spool spinning frame is used, in which case the spindle rail is stationary and the ring rail traverses up and down. This acts only as a twister putting no draft in the yarn whatever. This system, to our knowledge, is only used for filling and not for making warp.

Where coarse numbers are made, such as are used primarily for mop yarns, that is, numbers from .50-hank up to 2.50-hank, it is customary to use an 8x4 flyer spinning frame which differs from a cotton roving frame only in that worsted type flyers are used which permit a fairly high speed and the yarn is twisted without draft onto a double headed spool with an 8-inch traverse and a 4-inch head. This machine is used primarily to give a big supply package to a 12x6 flyer which is very similar to a cotton slubber except that 12x6 double headed spools are used and that the creel is arranged to take from 4 to 8 spinning bobbins to be plied together through a single bottom roll and single self-weighted top roll.

STA Holds Profitable and Enjoyable Convention at Blowing Rock

THE inspiring beauty of the North Carolina mountains provided an enjoyable setting for the 28th annual convention of the Southern Textile Association, held at the Mayview Manor, Blowing Rock, N. C., on Friday and Saturday, June 19 and 20. A crowd of mill men and their wives, and salesmen and other guests, equalling in size the attendance at recent meetings at the beach, demonstrated the wisdom of the officers in selecting the place of this year's convenion. The delegates were privileged to hear a series of informative addresses by outstanding figures in the industry, which, coupled with the social and entertainment features of the meeting, made it a most profitable and refreshing occasion.

Fred Still Is New President

Fred L. Still, superintendent of the Victor plant of the Victor-Monaghan Company, Greer, S. C., was elected president of the association. E. M. Holt, manager of Erwin Cotton Mills Co., Mill No. 3, Cooleemee, N. C., was made vice-president; and L. J. Rushworth, superintendent, Riverside Division, Riverside & Dan River Cotton Mills, Danville, Va., was made chairman of the board of governors. New members elected to the board of governors include

Frank D. Lockman, superintendent, Lockhart (S. C.) plant, Monarch Mills; R. T. McWade, general superintendent, Brookside Mills, Knoxville, Tenn.; Robert T. Stutts, superintendent, Woodside Cotton Mills Co., Simpsonville, S. C.; A. H. Cottingham, general manager, Victor-Monaghan Company, Greenville, S. C.; and W. E. Hammond, superintendent, Balfour (N. C.) Mills. Marshall Dilling was re-elected as executive secretary.

The convention included a meeting on Thursday night, June 18, of the associate members division; a general meeting of the association on Friday morning; a golf tournament on Friday afternoon; the annual association banquet on Friday evening; and the final general session on Saturday morning.

Address of John A. McFalls

At the opening of the convention proper, Fred L. Still made a few remarks of greeting, and was followed by John A. McFalls, general superintendent, Entwistle Mfg. Co., Rockingham, N. C., who as president of the association presented the annual address of the president. Mr. McFalls first delineated the importance of the southern textile industry, showing that its mills are worth possibly $800,000,000, employing approximately 250,000 people, and consuming 80 per cent of all of the cotton spun in this country, with hundreds of millions of dollars spent annually in wages. All of this, he pointed out, is under the supervision and direction of the operating executives who comprise the Southern Textile Association, giving them a dignified and responsible job calling for judgment and justice and sense. He then referred to "some of the requirements and responsibilities" which the job of superintendent and overseer—particularly the latter—call for in a man in such a position. Among these qualifications he listed the following:

"The interviewing and employing of applicants; the selecting of sub-executives; instructing help; giving proper supervision; maintaining discipline; keeping interest alert; looking after working conditions for the safety and health of operatives; transmitting and giving orders; transferring, promoting and discharging; obtaining co-operation; keeping the organization compact and efficient; keeping the machines in good repair; keeping up a high machine efficiency; keeping the product properly routed and moving; setting up standards of production, constantly watching the quality of the product; having a knowledge of operations; determining the causes of defects; keeping the work running well as nearly as possible; knowing the duty of each machine and seeing that it performs properly; seeing that proper atmospheric conditions are maintained; knowing the raw stock used and how to process it; holding up quality; holding down seconds; holding cost to schedule; and giving clear and accurate orders."

In discharging the multiplicity of duties incumbent upon the departmental foreman, Mr. McFalls said, there are certain further points of co-operation, including:

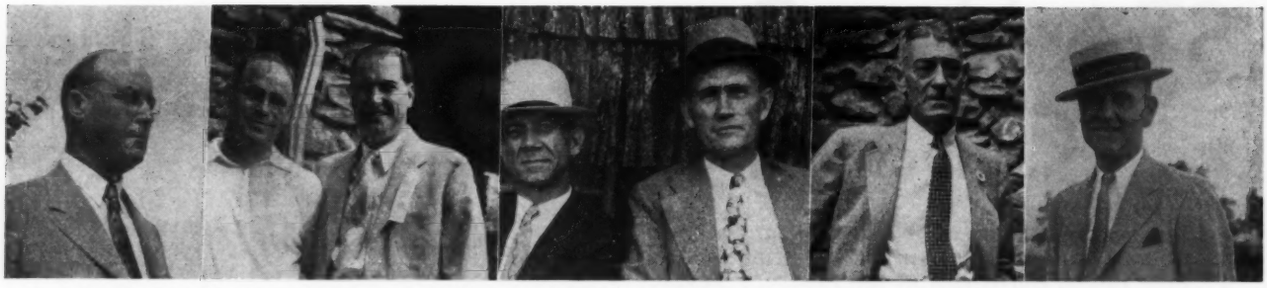
"Keeping the superintendent informed as to conditions; observing and carrying out all policies, rules and regulations without bothering the superintendent with petty details; getting reports in on time; assuming full responsibility for orders given in the department." "Don't pass the buck," said Mr. McFalls, continuing with these additional points of co-operation:

"Keeping fully informed of the job in detail; seeing a fellow-overseer's troubles with a desire to help; giving information about his own department; getting together on differences; observing general mill policies; creating respect in his own department for the men or processes of other departments; properly outlining the duties and responsibilities of second hands and section men; observing proper industrial ethics in cases of emergency or mis-understandings; giving sub-overseers authority commensurate with their responsibilities; listening to grievances or suggestions. In submitting orders to the master mechanic, explain why an order is wanted in a certain way. Never make a rush order unless it is an emergency. As nearly as possible, anticipate future needs. Get orders to the shop on time, properly observing all the rules of orders. Be reasonable in your demands. The master mechanic should inform the overseer why if a job can't be done at once. He should rush all rush orders. Try to be accurate in making promises when work will be done, and get the job out on time.

Left to right: Fred L. Still, the new president of STA; John A. McFalls, the retiring president; and Edwin M. Holt, the new vice-president . . . .

"It is the responsibility of foremen of all departments to maintain sanitary conditions, listen to grievances, consider suggestions, maintain comfortable conditions, encourage initiative, recognize ability, keep up interest factors, conduct himself in a dignified and respectful manner, maintain decorum and proper discipline in his department, employ congenial help, show a helpful attitude in correcting errors, properly represent the management to the help, allowing no employee to leave the mill at the end of the day feeling that he has had a raw deal."

Mr. McFalls also urged proper inspections and records of hazards and accidents, following up accidents, the creation of respect among the help for school activities, co-operation with school teachers, and en-



SNAPPED AT THE BLOWING ROCK CONVENTION. Left to right, John A. McFalls, the retiring president; W. H. Miley, Jr., and P. B. Parks, Jr., of Erwin, N. C.; O. B. Ayers and W. F. Bradshaw, of Rock Hill, S. C.; L. W. Thomason, of Charlotte; and E. L. Cantrell, of Fort Mill, S. C. . . . . .

Associate Members' Division Banquet

THE associate members' division of the Southern Textile Association, formed several years ago and comprised of the traveling salesmen and other associate members, held its annual meeting and banquet on Thursday evening, June 18, preceding the convention of the parent body. This useful adjunct to the association has flourished and proven to be an important function. Mill men and their ladies in Blowing Rock were special guests.

W. B. Uhler, of Borne Scrymser Company, chairman of the division, presided as toastmaster. The entertainment was featured by singing, dancing and acrobatic stunts staged by the Ritz-Carlton Blondes.

In the annual election of officers, Edwin Howard, southern representative of Veeder-Root, Inc., Greenville, S. C., was made chairman; George B. Snow, of Atlanta Brush Co., Atlanta, Ga., was made vice-chairman; and Junius M. Smith, business manager of the "Textile Bulletin", Charlotte, N. C., was re-elected secretary-treasurer.

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couragement of scouting and other activities, church and Sunday School attendance, and village cleanliness, playgrounds and wholesome recreation.

Donald Comer Speaks to Operating Executives

Donald Comer, president of the American Cotton Manufacturers' Association, and head of the Avondale Mills, was the first guest speaker, following Mr. McFalls. Mr. Comer spoke briefly and informally. He highly complimented the work of the Southern Textile Association, saying that he reads the proceedings of the discussion meetings and that "they give me lots of headaches", because "I read about your doing things progressively that I am not doing, and you stimulate me."

Mr. Comer called the operating executives' attention to certain major problems of the southern cotton textile industry, including the serious increases made within the last few years in the importations of cloth from Japan. These have increased from 700,000 yards in 1932 to 22,000,000 yards in the first quarter of 1936. "I want to tell you that the cotton fiber is pure cellulose," Mr. Comer said, "and it can be turned either into gun powder or into cotton goods, and whether Japan turns our cotton into gun powder and shoots bullets at us, or whether she turns it into cotton cloth and shoots it at us, we are going to have casualties from it, and today we have casualties because Japanese goods are coming in here, and I think it ought to be controlled or measured."

Mr. Comer also called attention to the fact that the equivalent of 1,500,000 bales of cotton comes into this country each year in the form of jute; that a protective tariff on jute, and selling cotton on a net weight basis, would make it possible to spin this much more cotton in America. The mill employees, he pointed out, are a large, voting group, and he said, "Let's tell them about these problems and see if we cannot get their help."

Operating executives are chosen for their positions, said Mr. Comer, because of their abilities, and the foreman or superintendent who feels that the added compensation which comes with more responsibility is all of his reward is missing his greatest opportunity for service. He urged the mill men to get closer to their people, to understand their needs, desires and problems, to maintain high standards of decency in the village and the mill.

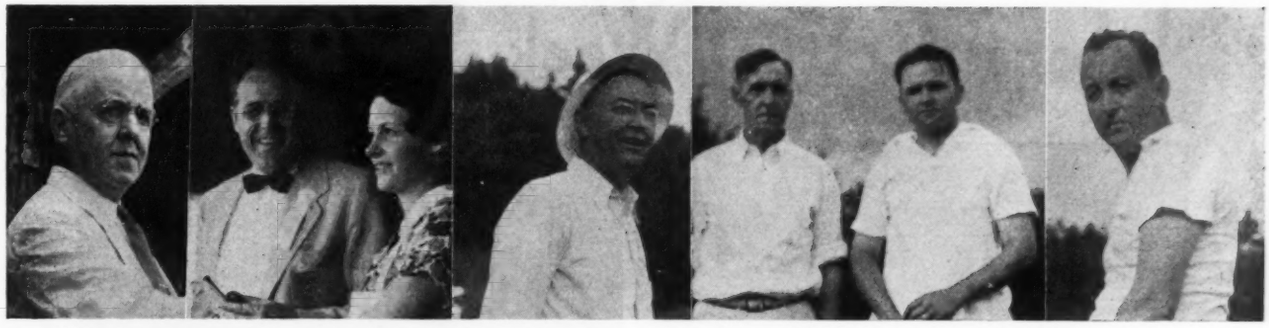
The final feature of the Friday morning session was an address by Robert R. West, president of the Riverside & Dan River Cotton Mills, Danville, Va. Mr. West spoke on the precision which is required in textile mill operation, describing the factors which influence the need for precision and are influenced by it. He urged for the industry a stable wage structure, supported by a basic minimum wage and held together by a framework of occupational differentials properly reflecting the skill required, a stable structure conscientiously adhered to by all units of the industry; and likewise a program of voluntary co-operative control of hours of labor. Mr. West's paper appears in large part on page 49 of this issue.

Friday afternoon was devoted to the annual golf tournament participated in by mill men, associate members and guests. The annual banquet was held on Friday night, and was featured by the drawing of attendance prizes by the ladies; an entertaining act by a North Carolina magician; the award of golf prizes; and the presentation of the retiring president's medal to Mr. McFalls, the presentation being made on behalf of the association by Edwin M. Holt. There was dancing in the ball room following the banquet.

Address of Dr. Murchison

The final session on Saturday morning, customarily devoted to routine business, was featured this year by an address by Dr. Claudius T. Murchison, president of The Cotton-Textile Institute, Inc. In this, his first appearance before a group of operating executives, Dr. Murchison discussed the relation of the technical to the economic in the textile industry. He reviewed the progress made in civilization in industry, transportation and communication, showing how in each of these phases, the technician has accomplished marvels which, unfortunately, have brought unforeseen torments in the form of economic crises, depressions, booms and speculations, overproduction, labor problems, price instability, cut-throat competition, etc. He declared that while such an outcome cannot properly be blamed on the technician responsible for them, that practical men should, after all, give thought and aid to these questions.

Dr. Murchison conceded that the temptation is great to reduce overhead cost, not by reducing the total amount of production, but by distributing it over a greater number of units of output, but showed that while this procedure, as well as wage-cutting, might



SOME GOLFERS AND OTHERS AT BLOWING ROCK Left to right, W. M. McLaurine, of Charlotte; Robert West, of Danville, and Mrs. Mildred G. Barnwell, of Gastonia; P. B. Parks, Sr., of Durham, N. C.; G. H. Lollis and Joe C. Cobb, of Honea Path, S. C.; and E. M. Holt, of Cooleemee . . . . . .

be effective in an individual instance, that such a policy in an industry like cotton textiles, with such a highly competitive and inelastic market, will defeat itself if it goes so far as to undermine the price structure.

"From the point of view of economical production," said Dr. Murchison, "a 40-hour week is certainly disappointing, particularly if the mill is not operating more than two shifts. For anything short of 24-hour operations, the 40-hour week imposes upon each unit of output an overhead cost considerably greater than has been customary in the history of the industry. It also means a greater burden of direct labor cost upon each unit of output, because, even with a 40-hour week, goes the requirement of a living weekly wage for the employees. It is natural, therefore, that the production manager, with his eye intent upon that ever-terrifying element of cost, should wish to operate 45 hours or 48, or possibly longer, depending upon local circumstances.

Blackstone Studios
Dr. Murchison

"However, we have reached a stage in our history when purely technical considerations no longer control the daily or weekly period of individual employment. Local circumstances are not uniform in their requirements. Statutory restrictions, regional customs, community attitudes and employees' desires, vary greatly throughout the textile area. But, regardless of these variations, the numerous mill units must sell their products in essentially the same market. A reasonable proximation, therefore, to uniform standards as to periods of individual employment is necessary for a staple price basis if the industry, as a whole, is to prosper.

"A particular mill, for local reasons, may choose to work on a double-shift basis of 55 hours each per week and by so doing may momentarily experience a satisfactory profit margin. But such action invites duplication and corresponding price reductions, thus not only depriving the participating mills of benefit but undermining the price structure of all other units. More than this, it creates labor discontent and induces an unfavorable reaction from the general public.

"With respect to wage scales, the considerations involved are exactly similar. Everyone can feel great sympathy for the struggling mill unit which faces the alternative of a payroll reduction or insolvency. It is but natural that the wage reduction should be preferred since it at least makes possible continued employment as well as the existence of the business itself. In many cases labor itself prefers that recourse. But when individual instances of this type arise it should be borne in mind that the cotton textile industry, as a whole, employs 450,000 people. Scattered instances of wage reductions, below the minimum which the industry itself recognizes as sound, may directly affect, in the aggregate, not more than 5,000 or 10,000 workers. It is therefore misplaced sentiment and distorted judgment to reason one's self into a course of conduct which, while apparently in the interest of the isolated few, becomes disastrous for the hundreds of thousands.

"The warfare against production costs must, of course, go on relentlessly, but each passing year serves to change somewhat the character of that warfare and necessitates that the procedure of each mill be subjected to a test which is industry-wide as well as local. When we view the day's work of a cotton mill superintendent, we recognize that even those problems which he may regard as purely internal in character and unique to his plant are, nevertheless, connected by invisible links to the industry as a whole. It therefore happens that the technician, without meaning to do it, is inevitably being drawn into the task of reconciling the technical and the economic."

Annual Golf Tournament of S. T. A.

A NUMBER of handsome prizes were awarded in the annual golf tournament conducted in connection with the convention of the Southern Textile Association at Blowing Rock. The tournament this year attracted its largest number of players, more than 70 mill men and associate members participating.

In the mill men's division, L. F. Cannon, of Rosemary, N. C., was awarded the association cup, turning in the lowest net score with handicap applied. Low net among associate members, to receive the "Textile Bulletin" cup, was tied for by W. S. Terrell, W. B. Uhler, John Ferguson, Walter Nicholson, George Batchelor, and W. F. Woodward; Mr. Woodward winning in the draw for the cup.

W. H. Miley, superintendent, Mill No. 2, Erwin Cotton Mills Co., Erwin, N. C., received a beautiful bowl awarded by Corn Products Refining Co., as winner of low gross among the mill men. J. A. Shumate, of Leaksville Woolen Mills, Charlotte, won second low gross for active members. E. M. Holt, of Cooleemee, N. C., won second low net for mill men. George Batchelor, of Greensboro, N. C., Hughes L. Siever, of Charlotte, and W. L. Nicholson, of Charlotte, were among other prize winners among associate members.

T. C. Davis, of Charlotte, and P. B. Parks, Sr., of Durham, were low gross winners in the hidden holes tournament for associate members, and mill men, respectively. G. H. Lollis, Honea Path, S. C., and M. E. Lake, of Charlotte, received consolation prizes in the mill men's and associate members' groups, respectively. R. E. Young, of Charlotte, received a prize for the highest gross score for all members, 136 strokes.

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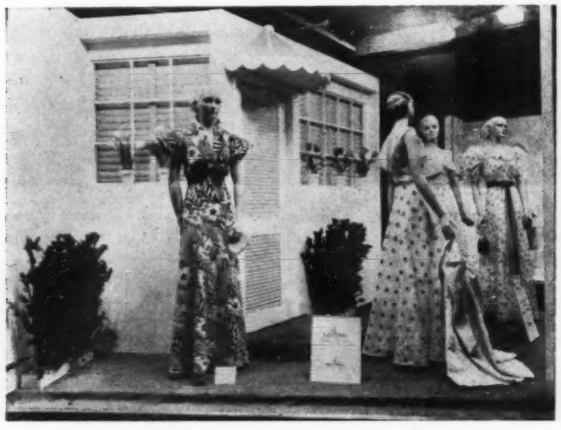
In the short business session Saturday morning, Dr. Murchison was elected as an honorary member of the Southern Textile Association. Marshall Dilling, reporting as executive treasurer, showed the financial affairs of the organization to be in wholesome condition. Thomas H. Webb, of Davidson, N. C., immediate past president of the American Cotton Manufacturers Association, was introduced, and briefly commended the work of the Southern Textile Association.

T. W. Mullen, of Rosemary, N. C., reported briefly as president of The Arkwrights, Inc., the research organization of the association. (See page 47).

The association's by-laws were changed to eliminate the annual membership dues for student members, as a step to encouraging students in the textile schools to become members and participate in the work of the organization. The year book containing the reports of the association meeting proceedings will be sent to only senior and graduate students, free of charge, it was announced.

Joe C. Cobb was named as the representative of the board of governors on the executive committee of the association. D. H. Hill, Jr., of the *Textile Bulletin*, Charlotte, was re-appointed secretary-treasurer of the association.

National Cotton Week Scores Again



By Charles K. Everett
Manager, New Uses Section,
The Cotton-Textile Institute, Inc.

PRELIMINARY REPORTS to the Cotton-Textile Institute, indicating record National Cotton Week sales volume and new highs for aggressive cotton merchandising and advertising efforts, are convincing evidence of the constantly increasing value of the Week to the cotton industry and its equally growing appeal to the retail trade.

Even Nature cooperated throughout the Week (June 1-6) with fair skies and temperatures that sent consumer interest in cotton soaring with the mercury to the profit of the more than 40,000 retail establishments who observed the event with unusually extensive newspaper advertising, show window displays and store interior promotions.

Out of scores of letters received from key merchants over the country during the Week, a cross-section, according to the Institute, reveals not only the best and most successful promotion of cottons of all kinds for any single week in many years, but a concensus among retailers that the Week provided the impetus which will carry the cotton selling season well into the Summer.

Both the retailers' letters and their advertising "copy" disclose a widening appreciation of the possibilities of National Cotton Week and the typical department store advertising, gathered by the Institute from important centers, shows a definite trend away from the presentation of cottons on a strictly price basis. Cottons this year were emphasized everywhere for their style, beauty, practicability and adaptability, and the wider use of so-called "prestige" or "institutional" type of cotton advertising this year was remarked by many observers.

Contributing mightily to the success of the event was the cooperation of so-called cotton maintenance industries such as washing and sewing machine manufacturers, soap, soap products and starch manufacturers, commercial laundries, pattern companies and others who not only enlisted their countless thousands of retail distributors to whom special counter and window displays were supplied but, as well, devoted portions of their coast-to-coast radio programs to the Week. In addition to this latter high-spotting of National Cotton Week on some of the most popular chain radio hours, scores of broadcasts sponsored locally by merchants centered attention on cottons.

Other equally valuable co-operation was extended by the newspapers of the country generally, many of whom, in addition to generous treatment of the Week editorially, devoted much space to cotton fashion presentations.

For their part, the retailers, on the basis of Cotton Week advertising gathered by the Institute from papers throughout the country, probably set a new high record for cotton advertising and, incidentally, for advertising tied-in directly with National Cotton Week.

In New York alone, a total of 226,194 agate lines of advertising was devoted to cottons in 9 daily and Sunday newspapers from May 31 to June 6.

This amazing lineage, in an area so characteristically indifferent to ordinary promotional Weeks, represents an expenditure, at an average rate of 45 cents per agate line, of $101,787.30.

The growing significance of National Cotton Week is emphasized by an analysis of the experience of one New York newspaper—*The Sun*. During National Cotton Week last year—observed May 6 to May 11—*The Sun* carried 25,255 agate lines of cotton goods advertising, while this year, during Cotton Week—June 1 to June 6—*The Sun's* cotton goods lineage totaled 38,217 lines—an increase of 51 per cent over the 1935 Cotton Week total. More impressive evidence of the influence of Cotton Week on store promotions, however, is the comparison between *The Sun's* cotton goods lineage during the Week this year—June 1 to 6—with the corresponding first June week last year. The total for the week of June 3-8, 1935, was only 17,480 lines as against 38,217 lines during National Cotton Week this year—an increase of 119 per cent.

WARP SIZING, by Paul Seydel (Article 8)

The essentials of "what it takes" to make a well-sized warp form a large part of this, Mr. Seydel's eighth installment; defects in warps come next month. .

IN THIS, the eighth installment, Mr. Seydel discusses the "makings" of a well-sized warp; deals with some practical points on slasher room operation, and discusses the different requirements of warps for different purposes. The next installment will cover common defects in the warp, how to detect and prevent or remedy them . . . . .

A Well Sized Warp

BESIDES the proper selection of cotton and its careful spinning, the correct ingredients and mechanics of sizing are most important to obtain a perfect warp.

It is, of course, necessary to use a starch, of which the amylopectose has not been destroyed by the use of acids and ferments or careless manufacture and storage. A good sizing starch has considerable viscosity and consequent strength and elasticity; this is very important to reduce breakage and shedding.

Shedding is also due to other causes, such as over-baking through excessive heat at the slasher drums, excessive drying of the warp, and the improper balance of sizing ingredients. Tallow alone is far from being an ideal lubricant and must receive the addition of such ingredients as will overcome its tendency to loosen the fibers in the warp. Starch does this very imperfectly, especially thin boiling starch, which must be aided by the presence of gums, waxes and viscous oils.

Very thin boiling starches have their application in finishing, but for sizing they are inferior in direct ratio to their lack of viscosity and elasticity.

A very thin boiling starch is very similar to sugar and has but little more value than sugar as a sizing ingredient. It does not form a film, therefore adds neither strength nor elasticity to the warp. In the good old days when the demand was greater than the supply and people had to be contented with inferior goods, tallow and wheat or rye flour with or without zinc chloride were considered good sizing mixtures, and warp dressers somehow managed to get along with them.

When starch came in to replace flour, especially with the advent of fast-running automatic looms, it was found to be deficient in elasticity and tensile strength and weave sheds looked like the scene of a snow storm, so bad was the shedding. To overcome this, size mixtures had to be devised, not alone to improve the lubricating qualities of tallow, to give it more viscosity and body at the working temperatures, but also gums had to be added to starch, especially thin boiling starches, and chemicals as well, to replace the gluten and amylopectine which had been destroyed in the manufacture of the starch.

It was found that the proper amount of moisture in the warp was of great help, so deliquescent substances were used, and to overcome a tendency to mildew antiseptics of a permanent nature were added, antiseptics which do not evaporate on the slasher drums.

Competition being keen, and finer and finer goods being made, goods with highly twisted warps, such as crepes, had to be sized so as to keep the twist from kinking until woven. Constructions of higher counts and peculiar weaves needed exceptionally well sized warps to resist the strain of a close weave.

Also goods were subjected to complicated processes and so the successful size maker had more and more problems to study and it has become a highly specialized industry requiring a very special and very thorough knowledge of chemistry as well as a keen understanding of the mechanics of the textile industry. The old time size mixer using an empirical formula left him by his father, without understanding the whys and wherefores of it, is gradually being replaced by real scientists who know what they are doing and why.

Repeated Boiling-Up Inadvisable

To use the words of a German warp specialist, Carl Kretschmar: "A fundamental axiom in connection with starch and flour sizes is that repeated boiling up must be avoided, as this treatment considerably impairs the adhesive properties of the size."

Altogether too many warp dressers fail to realize this and allow their size to cool off, a thing they should never do, as once starch has jellied it is ruined for sizing purposes and cannot be brought back to a boil with the expectation of obtaining a satisfactory size. Size should not be made one day for use the next day if this can at all be avoided, but if it is unavoidable the mixture should be kept very hot, as cooling anywhere near the point where it starts to jelly causes it to rapidly lose its colloidal properties, with the result that it does not produce a continuous film, and of course does not give the warp the proper protection. Only fresh size should be used, for even and best results, and it should be used at a temperature above 200 degrees F., and within a

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The first article in this series, page 43, November, 1935, COTTON, gave a non-technical analysis of the composition of raw cotton; the second, page 44, December, 1935, issue, covered flours and starches; the third, page 55, January, 1936, issue, discussed gums and glues; the fourth, page 63, March, 1936, issue, covered fats, lubricants and softeners; the fifth, page 74, April, 1936, issue, covered deliquescents and preservatives; the sixth, covering weighting materials, was on page 68, May, 1936; and the seventh, page 60, June, 1936, covered the water supply. Reprints of these previous articles are available to those who do not have copies, upon request.—THE EDITOR.

very few hours after it is prepared.

Too many mills have insufficient warp dressing equipment, and in order to keep up with the consumption of warps by the looms, the warp dressing equipment is pushed by speeding up the rotation of the drying drums with the very deplorable tendency to carry too much pressure and consequently too high a temperature on the drum with the result that warps are baked, harsh and brittle. The warp, during high speed automatic weaving, is subjected to considerable tension and it is the function of a good warp dressing to protect it against this tension, as well as abrasion occurring when passing through the heddles and due to the alternating motion of the reeds. The lower the temperature at which the warp is dried, the stronger and the more elastic it will be, other things being equal. When the equipment is short of mixing kettles, in order to produce enough warps for the weave room the size maker is too often forced to let down size that has not been sufficiently cooked. In the case of kettles of excessive capacity, size is produced in big batches that will last the slashers for many hours, causing thinning and deterioration. Fresh size which has been sufficiently cooked should be added to the system at least every two hours. The warp dresser must not only protect his warp, but he must be able to give it stiffness, smoothness, and resiliency according to the fabric.

Warps of Different Characteristics

The warp for fine fabrics must be sized differently from the warp intended for heavy, coarse goods. Fine warps to obtain a thin fabric of low count require a very light size; if the fine warps are used to obtain a fabric with substantial appearance and feel, the warp may have to be sized very heavily.

To give hardness to a fabric made with hard twisted yarn, the size should contain more starches and less fats, also gums rather adhesive and soluble, whereas when the opposite qualities are desired the size should contain gums that produce a bulky mucilage, not so much starch and a good proportion of carefully selected fats.

A carded, long staple, well twisted warp is much less of a problem to size than one made with poor material carelessly handled. Many a warp poorly made, of inferior material, has caused sleepless nights to the warp dresser. Of course, a warp that must be bleached and further processed requires careful treatment that will not interfere with subsequent processing.

A dyed warp requires a transparent size so that the color will not be dulled which may occur with inferior grades of starches, flours and sizes. Potato starch is known to be most transparent of the starches. Some starch gums have almost perfect transparency.

A well sized warp must not dust off in weaving. This condition is due to over-baking or poor adhesion, it is wasteful, dirties the looms and spoils the appearance of the weave shed. It may be due to insufficient boiling of the size and to application of the size at too low a temperature.

Cleanliness is essential where warps are sized and kept, dust and dirt are easily absorbed by a damp warp with resulting damage which with ordinary care should be avoided.

A very heavily sized large warp requires a specially good lubricant and a size with unusual elasticity.

Penetration is desirable only to an extent sufficient to favor good anchorage of the warp's film rather than to make a rod-like warp, which would lack in resiliency and elasticity. It is best to have a well lubricated core to a warp, with an elastic pliable film on the outside that will protect the warp, strengthen it and make it easy to tie and to weave. Fats with good oiliness and penetrating properties must be used for this purpose.

A very thin boiling gum or starch in penetrating the warp too thoroughly would produce a rod-like yarn, harsh, stiff and brittle. The gums and starches used for sizing therefore must have considerable mucilaginous and viscous qualities. A well sized warp must be clean, smooth and firm, the feel must be agreeable and it should be free from any objectionable odor or color.

It is poor economy to use sizing ingredients of inferior quality as the cost of good sizing materials is repaid many times by the greater value of the goods obtained, as well as improved production in every way. Of course the price of sizing ingredients is not necessarily in proportion of their value. It is an essential requirement of a good size manufacturer, to have a thorough understanding of the materials available, to produce the greatest efficiency at the minimum cost.

(The ninth article in this series, to appear in an early issue, will discuss "Defects of the Warp, Detection and Useful Hints."—The Editor.)

Let's Look at the Concession Stand

(Continued from page 48)

the maximum quality and quantity of properly selected foods for the minimum expenditure on the part of employees. By careful management, as much food value can usually be given in a 5-cent sandwich as is customarily sold in a 10-cent sandwich. Large glasses or bottles of milk, not less than 10 ounces, could and should be sold for 5 cents. In fact, milk consumption should be encouraged as it is one of our best balanced, most readily available sources of energy. There are many foods that can be served only at certain times of the year—for example, heavy meat sandwiches should be avoided in hot weather, but make an ideal food item in the winter.

The mill management should not consider the refreshment service as a minor item and delegate the duty to some incompetent, inexperienced person who may be interested only from the standpoint of the income he can develop from this source. If this procedure is followed, the likelihood is against developing this feature into an asset, and the tendency will be for it to continue as a liability and a sore spot; whereas properly handled, as stated, it can be developed into an essential and useful service contributing to increased efficiency and good will.

CURRENT TEXTILE TOPICS ....

Talk of the Month

OPPORTUNITY is once more, after a long lapse of time, knocking at the door of the cotton industry. A year ago the mills faced an auspicious market condition, like that today; with one vast difference. The demand was good and the price situation was improving then as now. Actual prosperous conditions were reached in the fall. But the stumbling block was that, having got rid of the NRA, the industry was still to face the business-destroying (though welcome) demise of the AAA.

Cotton industry at long last sees chance to do something

Peculiar developments hit the cotton mills during the first six months of the current year. The industry was in a general movement of broad consumption, with cotton products wanted by the individual consumer and by the large industrial user. Yet the converter of gray goods was not covering ahead, because of the threat of excise taxes to replace the invalidated processing levy. Hand-to-mouth buying was the order of the business for many months.

Accumulated Stocks of Goods, Curtailment, Discussed

This naturally led to talk of accumulating stocks of gray cloths at the mills, with the usual pressure on prices carrying the market well below the cost of production. Talk of curtailment became rife and the one thing deplored about the passing of the NRA was the lack of a centralized control whereby concerted action for restricted production could be engineered. Instead, consumption of cotton continued to run at a high rate and spindles obviously were going strong.

But as it turns out, the peculiar thing is that stocks were not accumulating in the burdensome way which was generally believed, through the long spell of spot buying. The prices were forced down through lack of large unfilled orders for future delivery, yet when buyers at last found the market turning stronger and were ready to operate ahead, it proved to be the case that few numbers were in heavy spot volume while in other cases there was actual scarcity of stocks. In other words, both sellers and buyers were misled by the reports in the market.

It has been pointed out in these columns and elsewhere for years that nothing is to be gained in the ultimate of business by concessions in price below reasonable figures. One has to admit that mills may take a loss to a certain point and still save over closing down operations for a temporary period. Except for purposes of occupation of machinery, however, it must also be admitted that the aggregate business is not increased by quickening the demand in dull periods through concessions.

The recent situation has provoked the comment that publication of statistics on production, stocks and unfilled orders would have saved the mills from unnecessary loss. In lieu of such factual information, it might be suggested that sellers should take cognizance of the general economic conditions and be guided thereby. Buyers of gray cotton goods in the recent period were operating from hand to mouth not because of lacking demand for their finished products, but because of latent fears of disturbing legislation. The use of cotton products appears to have been large.

Following the decision on the Guffey Coal Act, Edward Rowan, president of the International Association of Garment Manufacturers, made the statement that all industries must solve their own problems without expecting any help from the government. We would say that this situation is a welcome challenge to the cotton industry. Before the NRA, the leaders of cotton manufacture realized that some force was needed to bring the mills into line for well ordered operation of the industry. The NRA undoubtedly was a factor for good, through supplying a force which brought the unwilling minority into line.

After two years of operation under the codes, it is difficult to believe that any reversion to former uncontrolled and unwise operation of mills can be made. As stated by the National Association of Hosiery Manufacturers, "every manufacturer must know that, if he extends his daily shifts beyond eight hours, the advantage he may hold is only overnight. What could the profit be?"

Rumors of Wage Cutting Denied

Rumors of wage cutting by southern cotton mills quickly followed the Supreme Court's decision in the Guffey Coal case, but were promptly denied by The Cotton-Textile Institute. The American Cotton Manufacturers Association, by its action soon after for permanent observance of the code schedules, indicated that the prevailing spirit is against former practices. There is latent also the pressure of labor and public opinion to insure that a new day has dawned for the industry, from which a retrogressive step is unthinkable.

It still remains a problem, however, what is the practical basis of mill operation. Cotton manufacturers will agree with the finding of the National Association of Manufacturers that a 30-hour week would defeat its own end by causing decreased rather than increased employment. On the other hand, the International Labor Conference at Geneva was told by an American delegate that "the textile industry is an example of the waste of human energy" and that the 30-hour week is absolutely necessary under present world economic conditions. Essential to the welfare of all concerned is that, by study or experiment, a sound basis of operation should be found.

COTTON MILLS of New England finished the first half of the year with an improved tone to buying and prices of their goods. Before the end of May some lines were in a very sound statistical position, with orders for months ahead and buyers unable to secure early deliveries. Curtailment of operations was still in order, but a turn away from it was noticeable and at least one fine-goods mill that had been idle for weeks was reported resuming production.

New England Mill Situation

The healthy adjustment of output to demand has long been cited as a favorable factor in the fine-goods branch and this has put the industry here in an auspicious position for the start of an apparently broad movement in the second half of 1936. With the print cloth situation encouraging for the first time in months, the past month has developed a general outlook which should mean much for New England cotton manufacture, as fine goods were relatively well placed in the long dull period.

Conditions in New Hampshire are still unfavorable, because of the long series of complications in the case of the great Amoskeag Manufacturing Company. The situation which last September closed the plant (normally employing upward of 10,000 operatives) was aggravated by damage of $2,500,000 to the property in the spring flood. This and an involved situation as to the bonds of the corporation set back reorganization plans and it appears likely that a full year of idleness will have elapsed for the mills before they can be re-opened. At the time of writing, indeed, it was a matter of much doubt whether matters could be arranged for re-opening.

Industrial organizations of Massachusetts have been supported by labor in behalf of legislation which greatly eases the tax burden on mills and other manufacturing units of the State. A bill has been passed to exempt machinery from the burdens of local taxation and imposing, in lieu thereof, a levy of $5 per $1,000 of valuation. The saving is great, because local taxation ran an average of $35 per $1,000. This measure has been hailed as the salvation of Massachusetts as an industrial district of the country. It is expected to stop the loss of at least one important textile unit and immediately to bring one large industry to the State.

Ironically continuing the uncertainties of industry and the necessity for a continual fight for existence against the forces of politics, there was a simultaneous effort by a legislative group to push through a state "NRA" in Massachusetts. A move for the salvation of industry here was countered by an attempt to create a State labor relations board which, as stated by George L. Barnes, representing the Associated Industries of Massachusetts, would "mean the end of Massachusetts' industry".

This so-called Baby Wagner bill, said the Boston Herald, "would set up a state labor board more drastic than anything which the country has ever known. A commission of five would become our industrial dictator. This bill so exactly would nullify the benefits of the tax measure recently passed that the large industry which proposed to some here informed the Associated Industries passage of the labor legislation would halt plans for the change. The State Federation of Labor, behind one measure for salvation of industrial employment, showed its inconsistency by advocating a bill to destroy opportunity for work."

Wamsutta Mills of New Bedford have demonstrated in recent months the great advantage of trade marked lines and a direct connection from the producer to the consumer. The company started a few years ago to market its sheets and pillow-cases under its own name, direct to retailers. In the past year or two it has been making rapid progress in expansion of direct outlets for its other trade marked products, identified under the mills' name.

Its rayon division, recently developed, is just getting into operation and is so far only a small part of the activity of the Wamsutta plant. The rest of the plant has been making notable strides in recent months, a rather astonishing development that has been a pleasing contrast with general cotton mill conditions. The number of workers has jumped well above 1,000, compared with about 800 a year previous. Payrolls have increased proportionately and profits have accrued.

Pioneering in another direction, the Bates Manufacturing Company of Maine has developed a new weaving process, making possible the production of candlewick bedspreads on Jacquard looms. The new spreads are woven and tufted in one continuous process of manufacture. Patents are pending on the process. It is stated that the quality will be improved, because the process can be used on cloths so closely woven that hand tufters would refuse to work on them. The new line will be offered for fall, after two years of experimentation.

Among the organization changes of the month in New England comes the announcement that Russell T. Fisher has been made treasurer of the National Association of Cotton Manufacturers. Mr. Fisher has been secretary for the past ten years. He takes over the treasurership by reason of the resignation of William S. Pepperell, who has become purchasing agent of the Burlington Mills, of Greensboro, N. C.

Walter Whipple has been made vice-president of the Nashua Manufacturing Company, Nashua, N. H., in charge of manufacturing operations for all mills of the company. Agent for the Nashua Mills since 1923, he has been with the organization for 27 years. William H. Cadwell, agent of the Jackson Mills of the company, has retired. Everett R. Sweet, office manager of the Nashua Mills, has been made assistant treasurer.

On one of those rainy afternoons when salesmen just sit and clutter up the lobbies of hotels, the heavier drummer was telling about a little mill where he called. He knocked on the door and the superintendent invited him in by the fire. Surely enough, there in the alley between the looms was a stove. A younger knight of the road asked if he wasn't surprised at this. "No", he replied, "because at the mill I had called just before that, they stopped off the weave room to grind some corn meal that a fellow brought in."

"THE SITUATION"—as Seen Across the Executive's Desk

June 18, 1936.

IT IS a mighty good idea to stop every now and then and take stock, check up on inventory and balance assets and liabilities. By that I don't mean just cash and goods, but events. Only in that way can we really have a long range perspective, seeing just where we stand on pertinent matters and which way we would jump if we had to. Lots of important things have happened in the textile industry during the past month. None, as individual events, could be classed as revolutionizing the industry, yet they all were part of a foundation which is being laid to give us what we need in this game . . . balanced production and demand!

I keep sort of a "scrap-book" file here in my desk drawer and when things happen that seem important as a trend as well as an event I stick a note about it in the drawer and once every month or so I just bring out my scrap-book and try to size up the situation. Take the past month for example:

First, there was the Georgia meeting at Savannah where Dr. Claudius Murchison, president of The Cotton-Textile Institute, Inc., made a humdinger of a speech. I like that young fellow, he is a clear thinker and a man of high principles. He seems to always ask "what relation does this present event have on the future of the industry?" Well, at Savannah he advised immediate pick-up of the code adherence pledge and offered other methods by which the leaders of the industry could bring calm out of chaos. The following night he delivered the same address to the South Carolina Manufacturers at their convention in session at High Hampton. Two days later, President Donald Comer of the American Cotton Manufacturers Association, with Dr. Murchison as guest speaker, met with the board of governors and the policy committee of the Association, in Charlotte, N. C., and formulated plans for the coming year's work. Donald Comer is a real crusader and he will put every ounce of his strength and energy back of the program decided upon.

Plans of American Association to Push Industry Reforms

Conformance to wage and hour principles set up by Code Number One is the backbone of the project. It was found through a survey offered that only ten per cent of the mills in the cotton textile industry were non-conformists and President Comer announced that plans were set up by which these mills will be "reclaimed". Various associations and groups in the industry will act as vehicles in this major drive and it is expected that within a reasonably short time 100 per cent adherence will be guaranteed by the industry.

Committees were appointed to push reforms in the industry: a definite stand for a protective tariff on jute, which annually takes the place of 1,500,000 bales of cotton. The substitution of cotton for jute in items such as cotton baling, bags, etc., would mean the creation of 100,000 more jobs in the textile industry for employable persons. Of course, this scheme entails selling cotton on net weights instead of gross as is now the custom, and means a long and bitter fight with the jute trust. Minor movements of this sort have been attempted before but always fell down before that powerful jute influence. Perhaps with the American Cotton Manufacturers Association behind the movement now real progress will be shown.

A further study of the handling of Japanese imports, possibly by quota, is to be given to that nightmarish problem which has haunted the print cloth groups for years.

Other constructive means of better co-ordination in the textile industry were discussed and it is safe to say that a real beginning in a forward movement has been made.

Another F. T. C. Report on Cotton-Textiles

The textile industry hit another three-bagger with the publication of the completed special report made by the Federal Trade Commission for President Roosevelt. In tracing the history of the industry for a year, the commission was acting on instructions from the President embodied in an executive order issued September 26, 1934, when there was a demand for shorter hours and higher wages. The completed report (sections of which we have discussed previously) revealed that during the first half of 1935 cotton textile mills were less prosperous than when the report was started back in 1934, thus indicating that increased cost of production is the heavy load carried by the industry. The report stated that had the work-week of the industry been reduced to 35 hours instead of 40, mills would have been compelled to increase the selling price of materials by from 2.92 to 3.35 per cent to survive.

The report was based on data obtained from 630 cotton textile companies, including 113 spinning companies, 72 weaving companies, 302 combined spinning and weaving companies, 95 dyeing and finishing companies, 18 thread manufacturing companies, 16 companies finishing and spooling thread, and 14 companies manufacturing cordage and twine.

Almost simultaneous with the report of the Federal Trade Commission and following the announcement from the State Department that negotiations with Japan for a satisfactory gentleman's agreement with respect to cotton textile imports from Japan to this country had completely broken down, President Roosevelt, with unexpected suddenness, ordered on May 21 an increase of the rate on duties on controversial textile imports from Japan to this country of approximately 50 per cent, effective as of June 20, 1936. The increases, covering certain types of bleached, unbleached and printed cotton goods were recommended by the Tariff Commission after a Senate-authorized investigation as to whether the present tariff duties were sufficient to equalize foreign and American costs of production.

The print cloth fellows who, when drinking with their friends, used to say "May your children never

have to compete with the Japanese" will have to get a new toast now.

Some elements of the market, however, felt that the rates were not high enough to have any real helpful influence on certain branches of the industry, but it was pointed out that under the present law the president is allowed to raise tariffs by only 50 per cent and the fact remains that regardless of the rate established something definite has been done toward the elimination of the Japanese import bogey and thereby a trend has been started.

The Bailey Wage Clause

Another very important precedent was set when one of the leading selling houses, Joshua L. Bailey & Co., announced that it would place on all invoices, commencing May 28, a clause giving the buyer of their goods full assurance that the merchandise covered in the invoice was made under standard industry wages of not less than 30 cents per hour. Other selling houses followed in adopting this policy and I believe a widespread use of this assurance against wage cutting will give buyers confidence to make forward commitments, thereby stimulating business, and price competition would necessarily be placed on the basis of mill efficiency and executive integrity. The adoption of that clause is, to my way of thinking, one of the most vital things happening in the trade for a long, long time. A mill man may do lots of things in business that hurt his conscience, but I have never heard of one who would hurt his customers. Some have never distinguished between efficiency and chiseling and if they can't learn (as they will have to under this plan) the industry will be better off without them.

Yes, it looks to me as if we were headed out of the woods now. At least we are not just going around in circles. Progressive trends are definitely under way. Prices are already strengthening under their influence.

In the yarn end we find buyers who experimented with inferior grades of yarn at low prices last month have become the wiser because of their experiences and are not having any more of *that*, thank you. They are faced too with the realization that stocks are low and they must await their turn on deliveries.

Both price and sale of cotton cloth showed a tendency to rise and mill sales of unfinished goods, particularly sheeting and print cloth, exceeded production.

Last month's liabilities in textile events were overbalanced by assets. We have taken stock and we are pleased with the inventory. Yes sir! I just feel so good about the way things are working out, the way everybody is doing his bit to make our industry a bigger and better one to work in that I'm going to take my fishing pole and go to the river. Want to join me?

What the Southern Mills Are Doing

According to an announcement by J. W. Nipper, manager Florence (Ala.) Cotton Mills, the company will begin an improvement program costing $100,000. The plant will be closed while work is under way.

A recent addition to the Champion Hosiery Company, Marietta, Ga., gives the plant 6,000 square feet of floor space to be used for storage of yarn.

McDonough (Ga.) Hosiery Mill has made preparations to erect a new building and to make other improvements on their property.

A charter has been granted Marshall Hosiery Mills, Benton, Ky.

The Standard Hosiery Mills, Alamance, N. C., have completed the installation of five additional full-fashioned knitting machines.

A new full-fashioned hosiery mill at Burlington, N. C., will be known as the Hazel Knitting Mills.

Silver-Knit Hosiery Mills, High Point, N. C., obtained a permit to make extensive alterations in their property.

Fremont Hosiery Company, Thomasville, N. C., has a building almost completed and ready for occupation.

The Dixie Mercerizing Company, Chattanooga, Tenn., has begun construction of a $22,000 addition to its plant. The two-story building will be 60x125 feet and will house a new cafeteria and provide extra storage space.

The Minjoy Silk Mills, which were established at Morristown, Tenn., have been sold, the name changed, and work begun on a new addition which will be 40x145 feet and will house four carloads of machinery.

The Lanett Bleachery and Dye Works, Lanett, Ala., has purchased the machine shop of the Lanett Mill. A three-story addition is being built which will enable the Dye Works to increase its steam capacity and have additional warehouse space.

Regal Textile Company, Inc., Barnesville, Ga., has applied for a charter with J. C. and D. C. Collier as petitioners.

Swift Manufacturing Company, Columbus, Ga., will have an addition to its plant that will cost approximately $40,000. The addition will be brick and concrete, 72x121 feet, and three stories. The first floor will be used for the machine shop and the second and third floors for the finishing department.

Consolidated Textile Corporation, Pelham, Ga., is reconditioning the village houses and mill properties.

The Strickland Cotton Mills, Remerton, Ga., have completed the installation of 45 Saco-Lowell spinning frames, two Saco-Lowell slubbers, and an additional slasher. It is understood that three more slubbers will be installed at an early date.

It is understood that the Black Mountain (N. C.) Hosiery Mills, Inc., have purchased some wrap stripe machines for men's half-hose, which will be added to the spiral equipment already in operation. During the past two and a half years, the plant has almost doubled its machinery.

Burlington (N. C.) Mills Company is spending approximately $150,000 in additions, including a single-story addition to unit No. 3, now under construction, an addition to a unit at Ossipee, N. C., and a steam plant.

The Rhyne-Houser Manufacturing Company has purch-

READ WHAT THIS USER SAYS...

LONG ISLAND COTTON MILLS
LONG ISLAND N C

TUCKASEGEE SPINNING CO
MOUNT HOLLY N C

SUCCESSOR
SUPERIOR YARN MILLS, INC.
COMBED AND CARDED
COTTON YARNS
STATESVILLE, N.C

March 23, 1936.

Gastonia Mill Supply Co.,
Gastonia, N. C.

Dear Sirs:

Replying to your inquiry of 20th reference to the Goodyear Short Center Drive belts which we have installed at our Tuckasegee mill, will say that we consider these belts far superior to any belts we have used heretofore.

Particularly are these belts an advantage in changing over from one count to another, which is a constant operation in the mill business today, with orders pouring in for varied quantities of an equally varied number of counts.

With our Goodyear Short Center Drive belts, it is only a matter of ten minutes to change from one count of yarn to another, then too it does away with the necessity of cutting belts, and then later adding strips to them.

We are entirely pleased, and wish to take this opportunity to express our appreciation of the fine cooperation rendered to us by your organization.

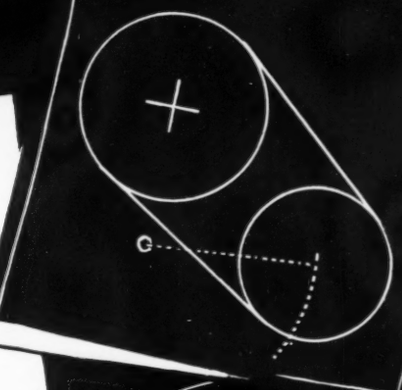
Very truly yours,

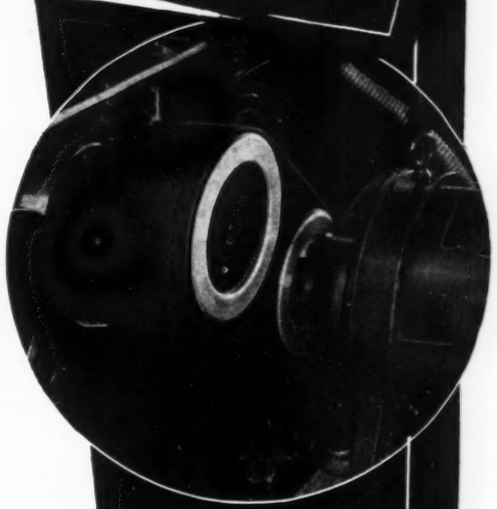
SUPERIOR YARN MILLS, INC.

By. K. W. Bumgardner
Supt. Tuckasegee Plant.

KB/s

G. T. M.-specified GOODYEAR
COMPASS "30" ENDLESS BELT
4" wide x 44" long
for spinning frame short center drives
SUPERIOR YARN MILLS, INC.
Tuckasegee Mill, Mount Holly, N. C.





7½ H.P. MOTOR
PIVOTED BASE

BELTS
MOLDED GOODS
HOSE
PACKING

YOU can always depend on superior performance at lower cost from Goodyear COMPASS (Cord) Endless Belts because of their patented stretchless, spliceless construction, and because every belt is individually *drive-fitted* by the G.T.M.—Goodyear Technical Man. To consult this money-saving expert, write Goodyear, Akron, Ohio, or Los Angeles, California — OR THE NEAREST GOODYEAR MECHANICAL RUBBER GOODS DISTRIBUTOR.

THE GREATEST NAME IN RUBBER
GOODYEAR

ased the Wildan Manufacturing Company, Cherryville, N. C., and will continue the operation of the mill. A considerable amount of work will be done in the mill and villages.

Eton Mill Company, Shelby, N. C., has resumed operations and it is understood that the plant is going full capacity again.

It is understood that work has begun on a two-story brick addition to the finishing plant of Seminole Mills, Clearwater, S. C. The building is to be 40x100 feet.

Cutter Manufacturing Company, Rock Hill, S. C., recently announced that it will enlarge its finishing plant by the installation of a Sanforizing unit for shrinkage of its products. Also, 102 houses in the mill village will be painted.

Lorraine Hosiery Mills, Sweetwater, Tenn., have begun operations, making men's and ladies' hose.

Wrenn Hosiery Mill, Thomasville, N. C., will construct an addition to their present plant that will double the production capacity.

A new Sanforizing machine has been installed in the Pell City (Ala.) plant of the Avondale Mills.

COMMENT ON THE COTTON MARKET

New Orleans, June 12, 1936

THERE WAS more animation in the cotton market the past month. Influences contributing to the improvement in trade and change in sentiment were: the good demand for cotton goods and raw cotton, the tightness of the spot situation, due to light offerings of "free" and loan cotton. At times there were revivals of speculative activity. The further advance in the value of the staple was also partly attributed to claims of insufficient rain in the eastern half of the belt.

Advices from the cotton goods markets continue favorable, there being more active trading, with further strength in prices. The trade has been impressed by the continuance of better than seasonal improvement in general business, especially as regards the present conditions in the cotton textile markets, wholesale and retail. The present scarcity of available raw material, and the keen demand for goods, partly due to the recent raising of the American tariff on imports of cotton goods from Japan, makes for a strong situation in the domestic cotton goods markets. A further expansion in the buying movement is not at all improbable during the summer to come from the spending of the soldiers' bonus money throughout the country, and in the fall and winter by huge expenditures of government money to provide work for the unemployed.

WORLD'S CONSUMPTION OF COTTON FOR NINE MONTHS, AUGUST TO APRIL INCLUSIVE

Estimated— Bales—	This season	Last season
American	9,424,000	8,480,000
Foreign	10,961 000	10,821,000
All kinds	20,385 000	19,301,000

American in running bales, foreign in bales o 478 lbs. net.

A gratifying feature is the sharp recovery in the world's consumption of American raw cotton. Stress is being laid on the large spinners takings and on the prospective further sharp reduction in this year's world's carry-over of American, July 31, next.

DISTRIBUTION OF SPINNERS' TAKINGS OF AMERICAN, AUGUST 1 TO JUNE 12

Bales—	This season	Last season
Southern mills	5,058,000	3,969,000
Northern mills	1,387,000	1,399 000
European mills	3,846,000	3,144,00
Oriental mills	1,517,000	1,717 000
Total, world	11,808,000	10,229,000

WORLD PROBABLE CARRY-OVER OF AMERICAN COTTON, JULY 31

Estimates— Bales—	This year	Last year
Supply	19,611,000	20,147,000
Consumption	12,600,000	11,206,000
Probable carry-over, about	7,011,000	9,041,000

The prospective further large reduction in the world's carry-over of American is due to last year's crop having been only about 10,500,000 bales, and to the world's consumption of American pointing to about 2,100,000 bales larger than last year's production, or about 12,600,000 bales. Apparently real progress is being made in reducing the large surplus, which, in 1932, was as much as 13,263,000 bales, whereas this year it will likely be more than 6,000,000 bales smaller than it was four years ago.

CENSUS REPORT FOR MAY

United States— Bales—	This season	Last season
Consumption of lint, in May	531,000	470,000
For 10 months	5,180,000	4,586,000
Mill stocks, May 31	1,090,000	975,000
Stocks in public storage and warehouses, May 31	5,237,000	6,581,000
Stocks in mills, public storage and warehouses, May 31	6,327,000	7,556,000
Stocks in mills, public storage and warehouses, April 30	7,211,000	8,266,000
Active spindles during May	22,829,000	23,041,000
Active spindles during April	23,124 000	23,854,000
Consumption of lint in May, in Cotton Growing States	448,000	380,000
In New England States	67,000	66 000
In All Other States	16,000	24,000
In the United States	531,000	470,000
Consumption of lint, 10 months, in Cotton Growing States	4,352,000	3,673,000
In New England States	679,000	710,000
In All Other States	149 000	203,000
In the United States	5,180,000	4,586 000

AMERICAN COTTON

Aug. 1 to June 12— Bales—	This season	Last season
Brought into sight (marketed)	12,709,000	9,043,000
Exports from the U. S., incl. Canada	5,849,000	4,598,000
Spinners' takings, world	11,808,000	10,229,000
Stock at all U. S. ports, June 12	1,544,000	1,491,000

WORLD'S VISIBLE SUPPLY OF COTTON, JUNE 12

Bales—	This year	Last year
American	4,405,000	4,422,000
Other kinds	1,948,000	1,838,000
All kinds	6,353,000	6,260,000

In the matter of world's consumption of foreign cotton, while the total for the nine months of the season shows only a slight increase over the corresponding period last season, it should be remembered that consumption of foreign last season was a record, which speaks well for this season, the slight gain notwithstanding. It is figured that the world's carry-over of foreign cotton will likely be about as follows:

Estimates— Bales—	This season	Last season
Season's supply	19,600,000	19,085,000
World's consumption	14,500 000	14,222,000
Indicated world's carry-over, July 31	5,100,000	4,863,000

Rainfall during May in the western belt was general and heavy, especially in Texas which removed the danger of the want of moisture, at least for the present. Late reports are to affect that there is a marked improvement in the crop outlook in the Southwest and in much of central belt, but in the eastern belt, from Alabama eastward and northward, there is the urgent need of a general heavy rain, for while there have been some good rains in spots and showers in some sections, there are districts where there has been no rain of consequence in two months, particularly in the northern portion. From weekly government crop review of June 10, we quote: "In the Eastern States local showers were helpful but afforded only temporary relief, and many places were not materially benefited. In Texas improvement in cotton was reported as general, with condition mostly fair to good, except in spotted coast section. Cultivation is progressing rapidly. In Oklahoma progress was mostly satisfactory, but much cotton was washed out or covered up by heavy rains in the western portion. Some squares are showing in the southeast. In Arkansas, progress and condition are good to excellent except in some highlands and locally elsewhere. In the eastern half of the belt, cotton will show improvement where recent rains occurred, but a good many places remain dry with permanent damage to the crop, especially in northern Georgia and parts of the Carolinas."

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

Year—	1936	1935	1934	1933	Normal
For May	6.56	7.20	1.88	3.93	3.64
From Nov. 1 to May 31	15.79	21.10	16.80	15.58	16.68

Early advices, rather premature, point to further increases in the cotton acreage, future weather permitting. Late advices from Bombay, India, however, are to effect that the "Monsoon" thus far is rather unfavorable, being generally weak.

Though they cost no more to buy than other types of roll covering —

...THESE CORK COTS BRING YOU WORTH WHILE SAVINGS RIGHT FROM THE START!

PRICES of other types of roll covering vary slightly, but on the average they cost the same as cork. But from the very first day you install Armstrong's Seamless Cork Cots on your rolls, you enjoy savings that mean money to you. Mill owners report that over a period of time, these cots actually *cut roll costs as much as 50 per cent!*

Armstrong's Seamless Cork Cots are tailor-made at the factory to fit each mill's rolls, thus eliminating at the start the most expensive part of covering a roll. Quickly assembled and buffed to a fine finish, they present an ideal spinning surface — resilient, constant in density, true and concentric.

Nor is that all! Armstrong's Cork Cots save you money because of the long life of cork. With these cots you get a thick wall of durable, rugged cork, that gives the average service of a normal spinning roll *each time it is put into the frame.* For here is one of the big reasons for using cork—you renew the life of the cot again and again—simply by rebuffing at a cost of only a half-cent a roll. Many mills are getting five, six, or even more rebuffings on their Armstrong's Cork Cots.

Consider these money-saving advantages of cork! And remember, too, that with these new *Extra Cushion* Cork Cots, you can spin a stronger, more uniform yarn with less end breakage. Let us send you detailed information and samples of these cork cots, also typical examples of cork's economy. Write Armstrong Cork Products Co., Textile Division, 923 Arch Street, Lancaster, Pa.

ARMSTRONG'S *Extra cushion* SEAMLESS CORK COTS

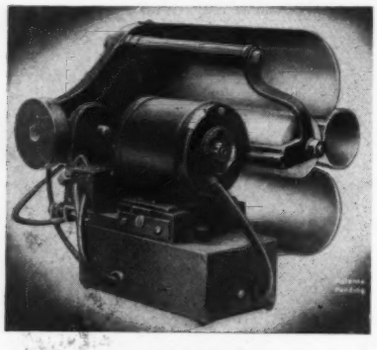
for spinning and card room rolls

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

New Textile Equipment and Publications . . .

Butterworth Electric Guiders

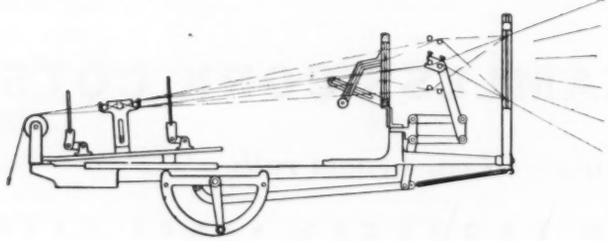
As has been understood in the trade for several years, H. W. Butterworth & Sons Company, York and Cedar Sts., Philadelphia, Pa., who for more than twenty years have made air-operated guiders, will now market electrically operated guiders. The new electric guiders are described as being motor-operated and having a contact switch which requires thirty grams to operate. This switch operates in a vacuum and is said to be good for 100,000,000 operations. The make and break mechanism of the switch requires a movement of less than one-fiftieth of an inch. In the new guiders it is possible for the operator to vary the pressure of the nip instantly if necessary. Also, an arrangement has been made to take care of seams as they pass through the rolls. It is claimed that the cost of operation for the new product averages five cents for ten hours and that its maintenance cost for an equivalent 34 months was only ten cents.



New electric guider

Sipp-Eastwood Introduces New Automatic Leasing Device

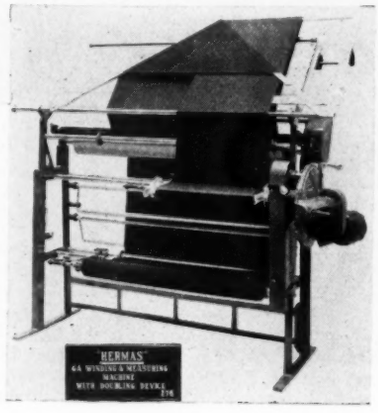
Sipp-Eastwood Corporation, Paterson, N. J., have announced a new automatic leasing device to be employed in the horizontal warping of silk yarns. The new leaser eliminates the need for gathering the whole section together when placing the lease. The yarn comes to the reed in practically a straight line. It is said that the device saves about three-fourths of the time previously required for the insertion of leases and particularly in the case where cones or cone spools are used. It is operated by throwing the lever to the left which opens a shed and permits a lease to be inserted. Then the operating lever is thrown to the right which opens the shed the opposite way so that the second lease may be taken.



Left, sketch illustrating new automatic leasing device . . . .

Hermas Doubling Machine

Hermas Machine Company, Hawthorne, N. J., has introduced a new GA doubling and folding machine to eliminate flat fold or tubes in full width on cloth going to department stores and cutters. This machine is designed along the general lines of the standard GA measuring machine but has a new doubling device developed by Hermas. The goods may be doubled and reeled from rolls, tubes, or flat fold, and may be inspected during the operation. The fabric leaves the roll or flat fold and is draped over auxiliary bars and thence passes to the measuring drum. From there it goes over a doubling device where the goods are folded in half with the selvages together.

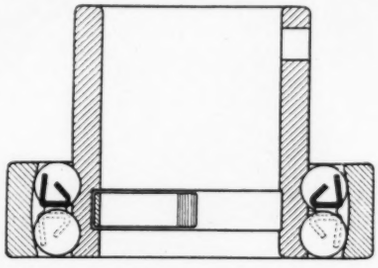


New doubler-folder

The bars, rollers, and handles are chromium plated and the machine is equipped with a variable-speed drive, with reverse-wind optional. The doubling device is special equipment on the GA winding and measuring machine and may be applied to any GA machine now in use. It is so designed that when it is not needed, it can be instantly removed from the machine.

SKF Grip-Lock Bearing

The SKF grip-lock bearing is the latest addition to the line of anti-friction bearings made by SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Penn. The grip-lock principle offers the advantage of quick, simple application of the bearing without tools of any kind, and insures the user of a bearing positively locked to the shaft. Essentially, the bearing is the SKF self-aligning extended inner race bearing with an eccentric groove machined in the bore of the inner race. Fitted in the groove is a piece of spring steel known as the grip-lock shoe. When the shoe is in the deepest part of the eccentric groove, the bearing may be readily slipped on the shaft. Then, by holding the inner race of the bearing while the shaft turns in the direction of operation, the knurling at the ends of the grip-lock shoe grips the shaft causing the shoe to wedge in the shallow part of the eccentric groove, thus securely locking the bearing on the shaft.



Grip-lock bearing

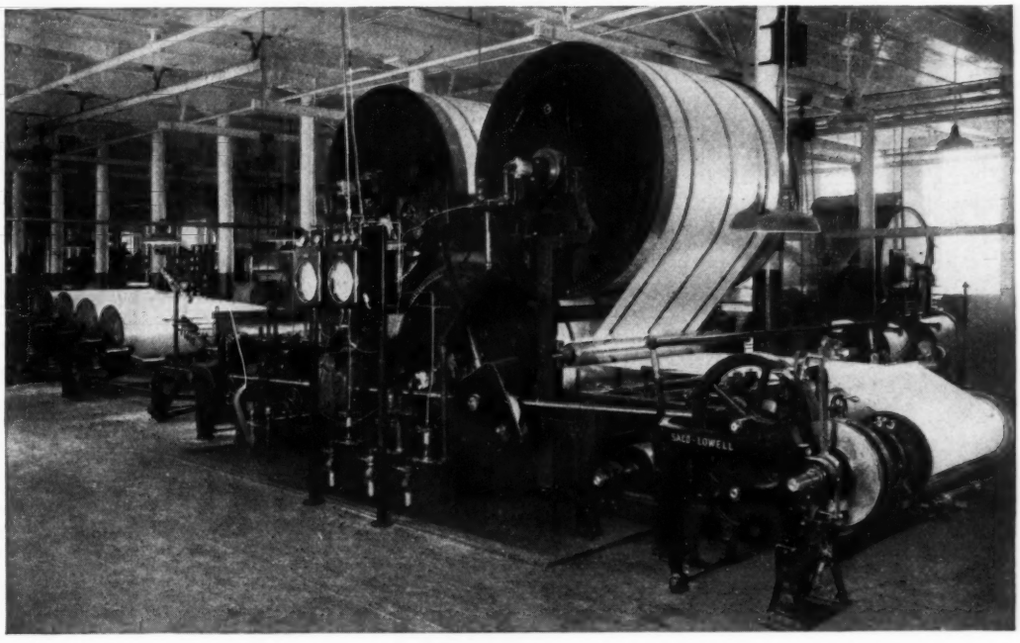
Boiler Feedwater Treatment

The Permutit Company, 330 West 42nd St., New York City, have issued literature on internal boiler feedwater treatment that explains that the correct internal treatment of boiler feedwater requires a nice adjustment of the chemicals used so that the formula is balanced, in each respect, against the requirements of the water supply. Permutit internal boiler feedwater conditioning is a development in the company's constantly broadening service to industry. It is stated that Permutit offers no miracles or cure-all compounds, but will intelligently study the problem of the manufacturer and

Announcing . .

SACO-LOWELL MODEL 36 RAYON SLASHER

A NEW DESIGN FROM HEAD END TO CREEL



New steel frame. Stretch control unit. Taylor system of slasher control. Anti-friction bearings throughout. Copper cylinders, size box and guide rolls all heavily-tinned. Ball-bearing magazine creel. Adaptable to Viscose or Acetate yarn.

Yarn speeds up to 100 yds. per minute*

Stretch accurately controlled within 1-4 of 1% from 2% to 15%

Perfect thread lease on every loom beam

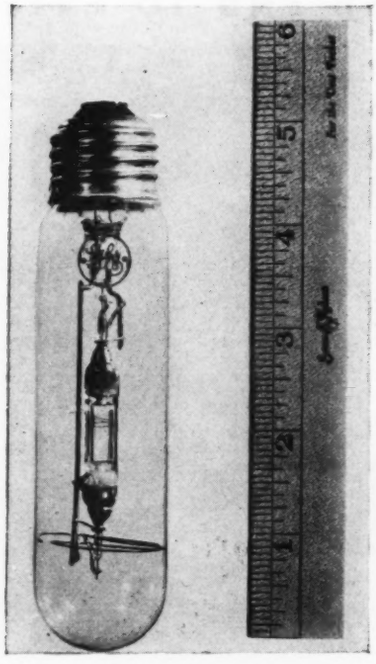
*Usual speed with previous equipment: 30 y.p.m.

SACO-LOWELL SHOPS

place at his disposal the extensive laboratory facilities of the company. It advises that the three main points for internal feedwater is a check on the correct chemicals, the correct feeding, and constant control.

New G. E. Mercury Lamp

A new 85-watt mercury lamp having a light output of 3,000 lumens and an unusually high unit brightness was recently introduced commercially by the General Electric Vapor Lamp Company, Hoboken, N. J. The lamp represents a forward step in broadening



85-watt mercury lamp

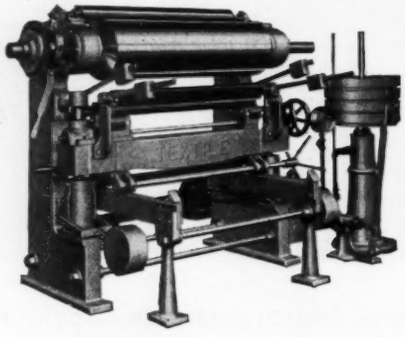
applications for bulb-type mercury lamps, which in the past two years have already achieved wide industrial and commercial use in the 400-watt and 250-watt sizes. Its initial application will be in scientific and industrial uses where its small size and unusual brightness make it particularly desirable. The lamp is unique in construction and operating characteristics because the light source is a minute column of mercury vapor less than an inch long, raised to an exceptionally high brightness within a sealed quartz tube. The restricted area and high unit brightness of the light source opens possibilities for the use in projection lamp apparatus and other equipment where light is to be focussed or its distribution accurately controlled, such as for beacons and possibly new types of highway lighting. The light from the new lamp possesses color characteristics generally similar to other mercury lamps; although there is somewhat more red radiation present, the light is still predominantly bluish in color, it is said. The bulb operates through a ballasting type of transformer on standard alternating current circuits.

Circular Describing Mechanical Lifters by Lewis-Shepard

Lewis-Shepard Company, Watertown, Mass., has prepared Circular No. 320 which describes and illustrates mechanical lifters for product manufacturing and handling of "hard-to-handle" products. Special engineered devices are shown for lifting and moving reels of cable, barrels, warp beams, drums, and chemicals.

Engraving Proving & Sample Printing Machine

The Textile-Finishing Machinery Co., Providence, R. I., have issued a circular descriptive of a new engraving proving and sample printing machine for which patent application is pending. The machine was only recently designed and is to be used for proving the engraving on copper printing shells. One of its objects is to have a quick and simple mounting of these shells for testing purposes, previous to placing them into commercial produc-

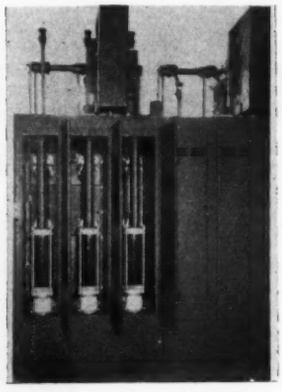


Engraving-prover—printing-sampler

tion without tying up the large or standard production machine. The full-sized printing shells may be tested under actual working conditions and pressure in this new machine, which, it is said, is less expensive and which affords an opportunity for immediate test work. Hydraulic pressure is employed in this work. It is pointed out that the adjustments of the supports for the copper shells to and from each other are laterally of the machine to accommodate shells of different widths or diametric dimensions, and that another advantage of the machine is the distribution of pressure on the roll by means of both horizontal and vertical rack so that the roll will be evenly and accurately forced into engagement with the work. The machine may also be used for making samples or for trying out the colors of dyes previous to their use in commercial production.

Steel Cubicles for Oil Circuit Breakers

New steel cubicles for Type FH oil circuit breakers, to replace masonry cells and bus structures for such breakers, have been announced by the General Electric Company, Schenectady, N. Y. The cubicles, it is said, possess all the advantages of masonry struc-



Steel cubicles for oil circuit breakers

tures and in addition are easy to install. They have a high salvage value, should the location of the equipment be changed. A minimum of field construction work is necessary because the cubicles are shipped completely assembled for installation. Mechanical and electrical interlock features are available in the design as the application demands.

Booklet by Westinghouse

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Penn., have published bulletin No. B 2072 that gives the facts about their motors and controls. The bulletin contains essential information regarding popular sizes and types of Westinghouse motors and is a quick guide for picking the kind of motor to use, principal applications, and the proper control to use. It is illustrated with the various company products and carries a hook-up chart that is especially beneficial to the engineer.

Power Transmission Catalog by Link-Belt Company

Announcement has been made by Link-Belt Company, Chicago, Ill., of a new 208-page catalog, No. 1500, devoted exclusively to power transmission equipment. The new book features the recently announced line of anti-friction roller bearing units, as well as an entirely new group of streamlined babbitted bearings, several new types of take-ups, and many other new products. It contains many illustrations, gives dimensions, weights, list prices, and contains a cross-reference index for convenient use of engineers and plant managers.

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● Imagine yourself out in the plant with the thermometer climbing higher and higher... working at top speed in sultry, sticky air . . . sweat pouring off your brow, shirt plastered to your back . . . you're hot, tired and thirsty... throat parched, mouth so dry you could spit cotton. Then you can really appreciate what Frigidaire-cooled water means to the men on the job. A long, cool, sparkling drink — not ice-cold or lukewarm, but always just the right temperature, for health and real thirst-quenching satisfaction.

Frigidaire Water-Cooling Equipment means employee comfort and goodwill... greater efficiency, more production... fewer accidents. And it also means a tremendous saving in actual dollars and cents over ice. A saving so great that Frigidaire pays for itself in a short time and then continues to earn a big investment return for years to come. This fact is proved by thousands of Frigidaire installations now in use.

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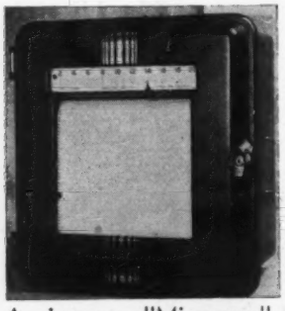
MADE ONLY BY GENERAL MOTORS

Micromax Recorder by Leeds & Northrup

The "Silver Anniversary" micromax recorder, the latest and most serviceable of their long line of industrial recording machines, has just been announced by Leeds & Northrup Company, 4934 Stenton Ave., Philadelphia, Penn. Marking the 25th year since



Anniversary "Micromax"

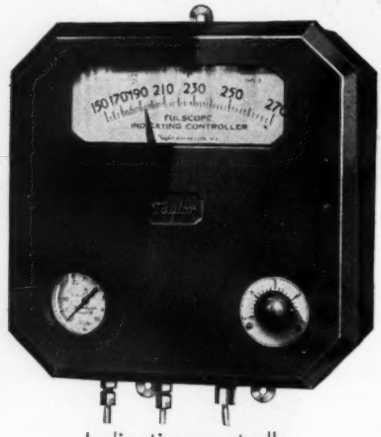
this concern originated the recording potentiometer pyrometer, this micromax not only provides in the one instrument all combinations of indicating, recording, signalling and controlling, but provides these functions in ways unique to this model. Measurements are presented most conveniently; a bold scale and pointer shows the condition at the moment and a clear record on ten visible inches of strip-chart shows it for the past several hours. The control and signal contacts operate undisturbed by air currents when the door is opened. It is said that the micromax assemblies assure reliability for the vital operations of measuring, detecting, balancing, and control. This machine and all other micromax models are described in a new publication, Catalog N-33A.

Houghton Begins Publication

E. F. Houghton & Company, 240 West Somerset Street, Philadelphia, Penn., makers of oils and leathers, have begun the publishing of their house organ entitled *Research Illustrated*, the first issue of which is the textile edition. Several interesting articles are included; the first takes up the sizing of rayon warps and goes into the reasons the warp is sized, the mechanical sizing principles, the application of the size, dryers, take-up, speed, and tension control and stretch. Also included are photomicrographs of rayon filaments showing acetate, cuprammonium, and viscose. Another article deals with a check-up of starches for better results and lower costs on the cotton slasher. Another interesting article for knitters is "Direct Help in Direct Knitting" and shows mildew photographs. For the woolen mills a story is included on oil and soap residue in finished fabrics and shows the proper method of choosing lubricants.

Taylor Indicating Controller

For many processes where close throttling control is imperative but a record of the processing is not essential, the Taylor Instrument Companies, Rochester, N. Y., have placed on the market a moderately-priced, adaptable, air-operated controller of



Indicating controller

the indicating type. Of importance is the simplicity of the numerous adjustments by means of which the controller may be adapted to any changes in future processing requirements. Some of the outstanding features of the controller are either high-range or full-range sensitivity, as required; the control point may be adjusted to any value within the control range; the controller action may be quickly reversed in the field by altering the position of a link; the temperature controllers may be equipped with mercury, vapor or gas tube systems.

Folder by Worthington

Worthington Pump and Machinery Corporation, with general offices at Harrison, N. J., have issued a folder describing their vertical triplex single-acting power pumps that are equipped with the Multi-V-Drive. The illustrated folder explains that the pumps are built for long life and are of simple, durable construction. The power pump is of vertical triplex, single-acting type with outside-packed plungers. The crankshaft and pinion bearings are the two-part adjustable type, lined with babbitt.

Motors used are the single-phase General Electric type with SCR sleeve-bearings for alternating current and the compound-wound sleeve-bearing type for direct current. The pumps are available in several sizes. The folder carries a general service table for cold, thin liquids and one for hot water boiler feed service.

Booklet Descriptive of Wildman Single-Head Full-Fashioned Unit

Wildman Manufacturing Company, Norristown, Penn., have released a 15-page booklet illustrating and describing their single-head single-unit full-fashioned hosiery machine. The booklet explains that the unit was developed to permit of flexibility that is so often needed in present-day manufacturing. Wildman first introduced their single-head leggers and footers in 1932, but sensing that the invention was not complete because two machines still had to be used to make the stocking, they experimented further and the new machine is the result of research and engineering ingenuity; the machine is built in two styles—Model TC and Model TL. The Model TC knits the stocking with the sides of the heel tabs attached to the sole, while with the Model TL the heel must be attached to the sole by a looper after the stocking is knitted. The stockings made on both models, when finished, are the same as the regular French foot stockings made on leggers and footers. After the stocking is finished, both models automatically rack back to the starting point. It is said that when knitting a regular stocking with the average length of stitch, the machines will produce two stockings per hour.

Bulletin Describes Pneumatic Type Controller

The Bristol Company, Waterbury, Conn., has published Bulletin No. 444 which describes the new Model 90 pneumatic type controller for temperature, liquid level, and pressure. In this bulletin the principle of operation is carefully explained and there is other interesting information concerning the application of controllers with drilling dimensions, etc.

Flexrock Product

Flexrock Company, 800 N. Delaware Ave., Philadelphia, Penn., have released a new piece of literature descriptive of their product and telling the purposes of same. It is explained that this material is a flexible concrete and may be installed over an old wood floor. Flexrock is ready for use overnight, is light in color, looks like concrete, is fireproof, and sanitary. It is said that the material has the toughness and flexibility of wood but that it will not split, splinter, warp or crack. It weighs two pounds per square foot after application; it may be washed and scrubbed daily. Flexrock is shipped in 500-pound units and may be applied by the maintenance department of the plant purchasing it.

Lively SPINNA CALF

MAKES FRIENDS WITH ANY YARN COUNT

"Lively" Spinna Calf adjusts itself almost instantly when you change counts to a finer number, and spinning goes ahead smoothly.

Its *natural* resiliency eliminates any starting difficulties on Monday mornings or after an extended shutdown.

End breakage is reduced to a minimum; good cushion is provided; the quality of the yarn is protected.

And rolls become smooth as ever a moment after an ordinary hard end passes through them.

"Lively" Spinna Calf maintains its top spinning quality up to 18 months or longer in front line positions.

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protects its well-known fabrics for ladies' wear and other fabrics, by spinning exclusively with Spinna - covered rolls.

Use Calf because it's "Lively" SPINNA CALF A. C. LAWRENCE LEATHER CO. BOSTON *choose Spinna because it's Lawrence*

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Silvered Bowl Mazda Lamps

A line of silvered bowl lamps with a permanent coating of mirror silver on the bowl and forming a highly efficient reflecting surface as an integral part of the lamp is announced by the Westinghouse Lamp Company, Bloomfield, N. J. It is claimed that the reflecting surface does not dull or tarnish throughout the life of the lamp.

The silvered bowl lamps are designed to be used in a base-up position, the silvering serving as an efficient indirect reflector. The lamps are standardized with inside-frosted bulbs because of the desirability of eliminating streaks, striations, and shadows of fixture supports on the ceiling. These lamps should be used only in porcelain sockets and in fixtures so designed that the temperatures of the lamp and fixture do not exceed limits for satisfactory operation.

Saco-Lowell Booklets

Saco-Lowell Shops, Biddeford, Me., have published the second edition of their booklet descriptive of their spinning machinery and illustrating their system of drafting and other improvements. The 56-page booklet carries close-up views of spinning frame motions and parts and gives valuable information about them. Through the booklet may be found breaking strength charts, production tables for various twist multiples, bobbin scale, creeling information, and specifications. This is a valuable reference book to any spinner.

Another booklet describing the features of Saco-Lowell twisters has also been released. It covers, with illustrations, the construction of the spindle, rings, separators, thread boards and guides, bobbin and yarn stop motion, knock-off clock, builders, and drives. A discussion of wet twisting and novelty yarns is included, besides some valuable notes on twisting. It contains production calculations and notes on specifications.

Other literature in pamphlet form has also been published entitled "Keeping Old Machines Young". The first of these deals with roving frames and how to improve their efficiency. It goes into the spur gear compound, its purpose, a description of, and the advantages. It then takes up the chain drive horsehead and the chain spindle drive. Other features are the positive yardage motion, the crown-gear swing stand, improved cone belt guide, and self-oiling bobbin gears. Another piece of literature describes the company's new equipment applicable to present slashers and studies the positive gear drive, the ribbed immersion roll, self-releasing gear for slashers, and a combination safety and vacuum valve for cylinders. Also included is a discussion of stretch control and anti-friction bearings for size rolls. The folder explains that the company is prepared to supply the present slashers with equipment necessary to change from the small loom beams to the larger size. The last piece of literature deals with picking machinery and describes ten important refinements that are readily adaptable to existing picking equipment. Among these are the adjustable grid bars for vertical openers, the combing roll, positive knock-off, automatic rack release and foot starting-lever, and ball-bearing spiral spur side shaft drive.

Folder on Calcium Arsenate

The Grasselli Chemical Co., Inc., 629 Euclid Ave., Cleveland, O., manufacturers of Grasselli spray products, have a folder showing the application of calcium arsenate in the control of the boll weevil. It is said that when the weevil is eliminated in the cotton fields, that increases of 300 to 400 pounds of seed cotton per acre result. From five to seven pounds of calcium arsenate is usually applied per acre, depending on the thoroughness of application and kind of machinery used. In large districts where airplane application of calcium arsenate is justified over hand or ground machine dusting, a material saving is shown due to the quick coverage of a large acreage. In this manner, less calcium arsenate is required and the chemical adheres better to the plant.

New Low-Priced Intra-Department Communicating System

Bell Sound Systems, Inc., 61-63 East Goodale Street, Columbus, O., have perfected a new low-priced, intra-department communicating system. Trade named "Belfone," this new equipment offers to even the smallest establishments the advantages of sound equipment that has previously been considered a costly luxury suited to only large firms.

It incorporates certain principles of radio, using an amplifier, microphone and loudspeaker, and permits the transmission of voice from one department to another. With a box approximately the size of the smallest midget radio placed on the desk or counter, one simply flips a key and talks in a normal voice. By a combination of two or more of these small units, a wide variation of systems can be secured; one station can talk to any one of a number of stations by means of a selector key. It is reported that the equipment is practically foolproof with no delicate parts to get out of order.

Spectrometric Equipment Catalog

Bausch & Lomb Optical Company, Rochester, N. Y., have released a catalog on spectrometric equipment. It explains that a spectrometer or spectrograph is an instrument designed to break up the light from a source into its constituent wavelengths and to provide a means of qualitative or quantitative study of the spectrum thus formed. The catalog is illustrated and takes up the basic theory and design, direct vision spectroscopes, bunsen spectroscope, laboratory wavelength spectrometer, and the quartz ultra-violet monochromator.

New Product by Du Pont

A new hydrocarbon resin, called RH-35, has been developed by The R. & H. Chemicals Department, E. I. du Pont de Nemours & Company, Wilmington, Del. The new resin is brittle, odorless, crystal-clear, and water-white; it has excellent electrical properties, high refractive index, and is highly resistant to heat and light. RH-35 is readily soluble in most of the hydrocarbon solvents as well as in a variety of other organic solvents. Owing to a broad range of compatibility, RH-35 may be blended to give transparent mixtures, some of which have properties quite different from the constituent materials. When blended with other resins, increased resistance to water, acids, and alkalis is imparted, and the flow in hot melts is improved. At the present, RH-35 shows promise in the textile, paper, printing ink, and other industries.

Westinghouse Linestarters

A complete new line of linestarters employing the D-ion principle of arc interruption have been announced by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Penn. Designed for across-the-line starting for single phase and polyphase squirrel cage induction motors, they are especially applicable where push button control is desired with complete protection to the operator, the motor, and the machine. Long life, safe and reliable operation have been incorporated in the construction of these linestarters. They are neat in appearance and are said to be well suited for built-in control application. All parts are accessible from the front, and are self-insulated and mounted on a steel base. Motor protection is provided by a thermostat disc overload relay, and protection is also assured against single phase and locked rotor operation. The entire contactor and assembly may be removed from the cabinet by loosening one screw which clamps the steel base in place against rubber pads.

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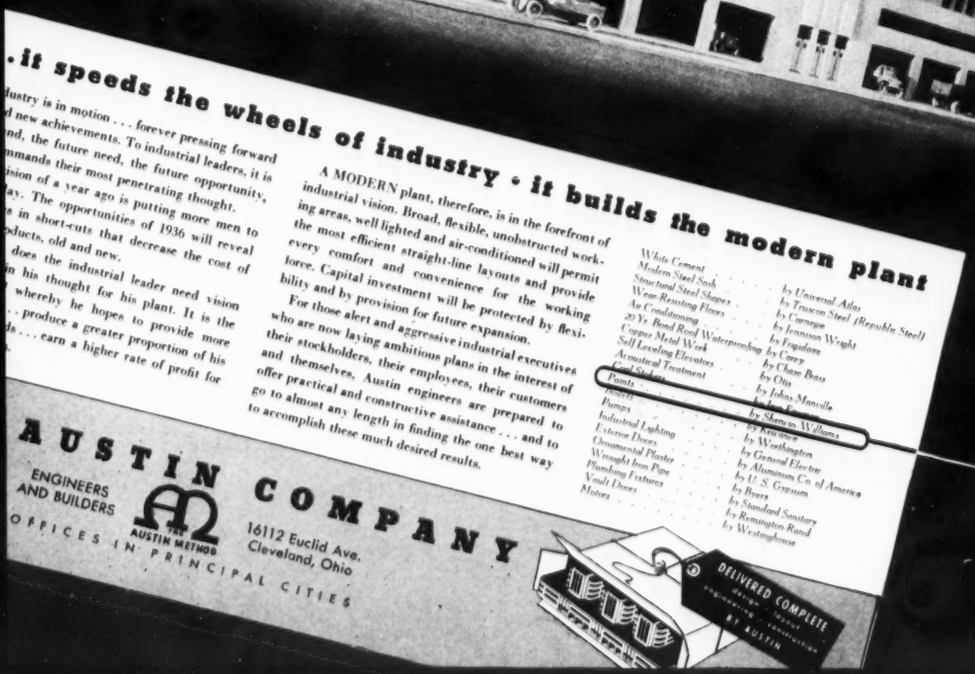

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Industry is in motion . . . forever pressing forward to new achievements. To industrial leaders, it is plain, the future need, the future opportunity, demands their most penetrating thought. Vision of a year ago is putting more men to work. The opportunities of 1936 will reveal gains in short-cuts that decrease the cost of products, old and new.

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A MODERN plant, therefore, is in the forefront of industrial vision. Broad, flexible, unobstructed working areas, well lighted and air-conditioned will permit the most efficient straight-line layouts and provide every comfort and convenience for the working force. Capital investment will be protected by flexibility and by provision for future expansion.

For those alert and aggressive industrial executives who are now laying ambitious plans in the interest of their stockholders, their employees, their customers and themselves, Austin engineers are prepared to offer practical and constructive assistance . . . and to go to almost any length in finding the one best way to accomplish these much desired results.

White Cement	by Universal Atlas
Modern Steel Sash	by Truscon Steel (Republic Steel)
Structural Steel Shapes	by Carnegie
Wear-Resisting Floors	by Jennison Wright
Air Conditioning	by Frigidaire
20 Yr. Bond Roof Waterproofing	by Carey
Copper Metal Work	by Chase Brass
Self Leveling Elevators	by Otis
Acoustical Treatment	by Johns Manville
Steel Stairs	by Bilco
Paints	by Sherwin-Williams
Boilers	by Kewanee
Pumps	by Worthington
Industrial Lighting	by General Electric
Exterior Doors	by Aluminum Co. of America
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Wrought Iron Pipe	by Byers
Plumbing Fixtures	by Standard Sanitary
Vault Doors	by Remington Rand
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TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

News of Metz Company

Jack B. Button, who is well known in the textile industry, has joined the sales organization of H. A. Metz & Co., Newark, N. J., manufacturers of oils and chemicals, and will travel North Carolina, Virginia, and part of Tennessee, with headquarters in Charlotte, North Carolina.

Roe R. Dorsett, who has for some time represented H. A. Metz & Company in the South, will cover the South Carolina, Georgia, and Alabama territory.

Smith Engineering Manager for Westinghouse

The appointment of M. W. Smith as manager of engineering has been announced by Dr. S. M. Kintner, vice-president of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Penn.

Mr. Smith, who is a graduate of Texas A. & M. College, has been with Westinghouse since 1915 when he joined the company as a student engineer. Since that time he has been identified with generator engineering operations, first as a design engineer and later as a section engineer. More recently he has been in charge of the design of the large rotating alternating current machinery of the generator division. Mr. Smith will maintain his new office at the Westinghouse East Pittsburgh headquarters.

Franklin Process Acquires New Custom Yarn Dyeing Plant

The Western Dyeing and Processing Company is to become a subsidiary of the Franklin Process Company, Providence, R. I. The new company will be known as the Western Franklin Process Company and will occupy the plant that is now used by the former company in Chicago. The latest type of Franklin Process package dyeing equipment will be installed along with the latest type winding and accessory machinery. Will Stahl will be president and general manager.

Staley Moves Southern Office

Announcement has been made by A. E. Staley Manufacturing Company, Decatur, Ill., of the removal of their southern office from 721 Glenn Building to 1710 Rhodes-Haverty Building, 134 Peachtree, N. W., Atlanta, Ga. The change took place June 15. Wm. H. Randolph, Jr., is southeastern sales manager.

Testimonial Dinner for Meon

Upon the completion of thirty years of service with the Borne Scrymser Company, 17 Battery Place, New York City, Philip C. Meon, vice-president of the company, was tendered a testimonial dinner on May 14, under the sponsorship of the Organization Bowling Club. Presided over by O. G. Waring, president of the company, the affair came as a surprise to Mr. Meon. He was presented a handsome set of cuff links as guest of honor.

Hornbuckle Heads Own Company at Mount Holly, N. C.

W. P. Hornbuckle, designer and builder of package, beam, and roving dyeing machinery, has organized a new company to be known as Hornbuckle Machine Works. The offices and plant are located at Mount Holly, N. C.

Branch Office American Aniline Moved

The American Aniline Products, Inc., 50 Union Square, New York, N. Y., moved their Philadelphia branch to 210 North 13th Street, Philadelphia, Penn., where the space was remodeled to accommodate a full suite of offices, a new, completely equipped laboratory, and modern warehouse facilities. A complete stock is maintained there to assure rapid delivery service in Philadelphia and vicinity.

"Robert Boys" Field Is Dedicated

Robert Boys Field, a baseball field and grandstand near Green River, N. C., was dedicated on May 30, with brief ceremonies. The field was named for and dedicated to Robert W. Boys, president and treasurer of Green River Mills, Inc., Tuxedo, N. C. The dedicatory address was delivered by W. E. Bates, secretary of the mills and manager of the Green River baseball club, who paid a glowing tribute to Mr. Boys, who was responsible for the new grandstand and improved playing field. "This gentleman has seen to it," Mr. Bates said, "that the employees of the mill have good places in which to play as well as good places in which to work, and in appreciation of what he has done, the people of the community are erecting two stone columns at the entrance to the park, and over these columns will be arched the name 'Robert Boys Field'."

Skybryte Personnel Changes

The Skybryte Company, 3150 Perkins Ave., Cleveland, Ohio, have announced the appointment of George M. Malcomb as sales manager and Carl Breithaupt as technical director of the company.

Grothaus Elected Officer of Allis-Chalmers

L. W. Grothaus was recently elected vice-president of Allis-Chalmers Manufacturing Company, Milwaukee, Wis. Mr. Grothaus has had 32 years of wide experience with the organization, first working in the Norwood Shops, purchasing, drafting, engineering and sales divisions, and then becoming a member of the war industries staff during the war. He was district sales manager of the Minneapolis office and then the Cleveland office. In 1925 he became assistant manager of the electrical division at Norwood and then at Milwaukee, being made general representative of the company in 1931 and assistant to the president in 1933.

Talcott Factoring Volume Up for First Five Months

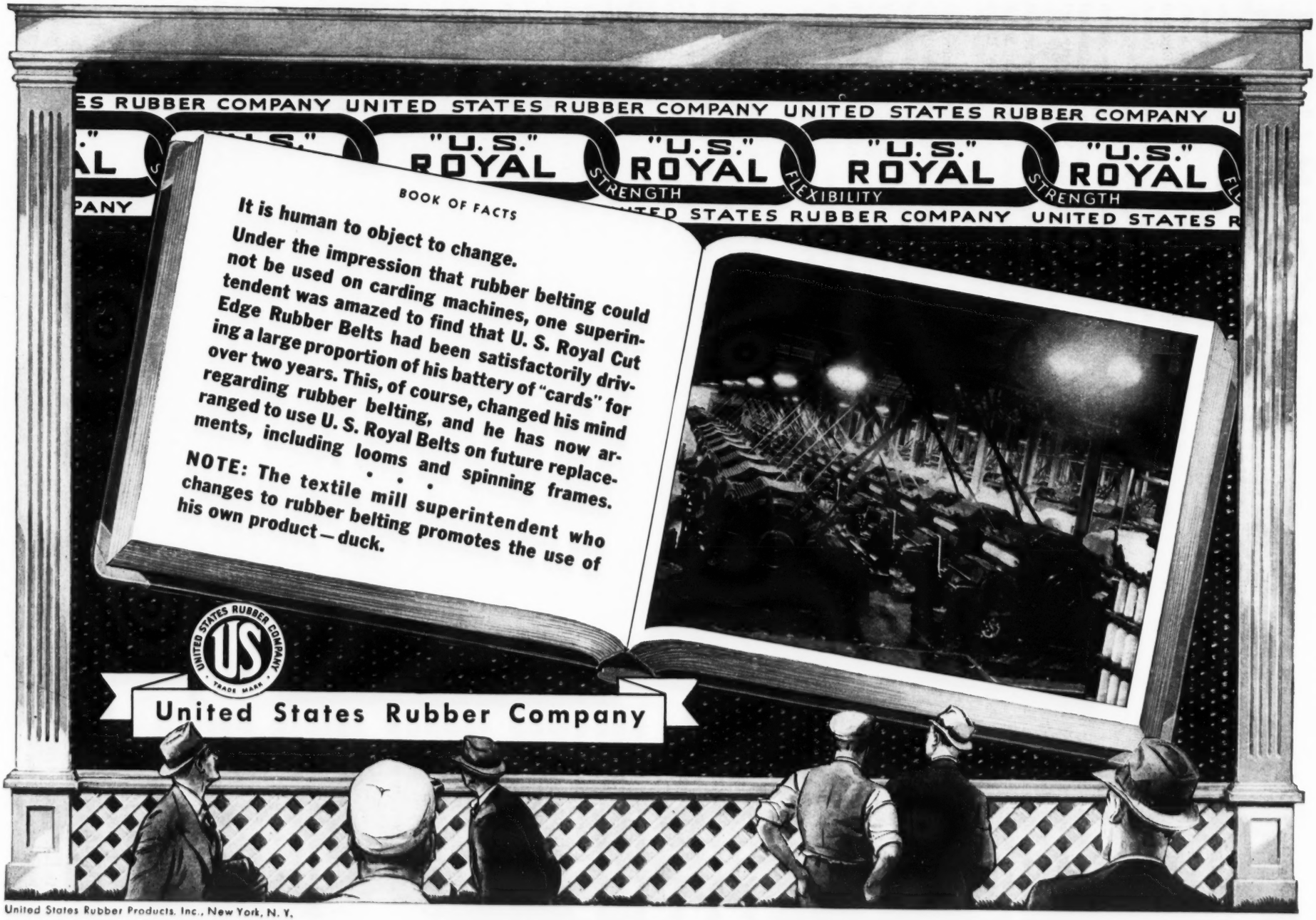
James Talcott, Inc., factors, 225 Fourth Avenue, New York City, reported that its volume of business for the first five months of this year totaled $32,347,258 as compared with $27,687,750 for the corresponding period last year; this is an increase of 17 per cent.

The factoring volume of the company for the month of May showed an increase of 16 per cent over the same period last year. The May showing is in line with the continued improvement, it is said, shown so far this year, as each month has registered a gain over the corresponding month last year.

Grasselli Chemical Exhibit

Chemicals used in wood preservation, in industry and agriculture, along with a complete miniature metal finishing plant comprise the Grasselli Chemical Company exhibit at the Great Lakes Exposition that opened in Cleveland, O., June 27 and will continue until October 4. This exposition commemorates the one-hundredth anniversary of the founding of Cleveland.

The Grasselli exhibit covers 886 square feet of space and is located in the Lakeside Exposition Hall. In part of the wood preservation exhibits is a railroad tie which has been in service for twenty-five years and which was treated with zinc chloride. In another part of the exhibit the fields of industry served are illustrated by photographs and articles of the automotive, textile, paper, leather, petroleum, and iron and steel industries.


ES RUBBER COMPANY UNITED STATES RUBBER COMPANY UNITED STATES RUBBER COMPANY U
"U.S." ROYAL STRENGTH
"U.S." ROYAL FLEXIBILITY
"U.S." ROYAL STRENGTH
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BOOK OF FACTS
It is human to object to change.
Under the impression that rubber belting could not be used on carding machines, one superintendent was amazed to find that U. S. Royal Cut Edge Rubber Belts had been satisfactorily driving a large proportion of his battery of "cards" for over two years. This, of course, changed his mind regarding rubber belting, and he has now arranged to use U. S. Royal Belts on future replacements, including looms and spinning frames.
• • •
NOTE: The textile mill superintendent who changes to rubber belting promotes the use of his own product—duck.
UNITED STATES RUBBER COMPANY US TRADE MARK
United States Rubber Company

United States Rubber Products, Inc., New York, N. Y.

Oil Manufacturers Association Has Meeting

Members of the Sulphonated Oil Manufacturers Association and their friends gathered at the Buckwood Inn, Shawnee-on-the-Delaware, Penn., June 3 and 4. The usual formal business meeting was dispensed with thereby giving those in attendance the opportunity to enjoy the recreation of outdoor and indoor sports offered. This is the second meeting of this nature, the first being held in Philadelphia last September. The committee responsible for the success of the field day consisted of Fred C. Scholler, C. P. Gulick, H. B. Hooper, and John C. Wolke.

Golf prizes were awarded at the end of the closing dinner as follows: Low net for members, Robert W. Brewer, Liberty By-Products Co.; Butler, N. J. Mr. Brewer had a gross score of 79, a club handicap of six, and played the last nine holes in 33; low net for guests, F. R. Lavezzo; second low net member, R. A. Scher; low gross member, Lloyd Koons; kickers handicap for members, B. A. Schiller; low gross guest, K. L. Patterson; third low net, E. E. Yake; fourth low net, E. S. Atkinson; highest gross score member, H. B. Dohner; highest gross score guest, A. P. Gumaer; kibitzer for attendants not playing golf, Frederic L. Babcock; door prize guest, A. A. Underwood; door prize member, H. B. Hooper; fifth low net, H. B. Sweatt; sixth low net, J. C. Wolke; highest net score member, Sam Slavin; birdie on 16th, D. S. Whiteman.

The S. O. M. A. silver cup won last September by Robert A. Scher was awarded to Robert W. Brewer for low net.

Arnold Opens New York Office

H. H. Arnold Company, Inc., Rockland, Mass., manufacturers of rubber covering machines, have opened a New York office at 171 Madison Avenue. The sales in New York, New Jersey, and contiguous territory are covered from this office with W. S. Taylor in charge.

Obituary

ALLAN MCNAB, who was formerly president of Pelzer (S. C.) and Tucapau (S. C.) Mills, passed away the latter part of May and funeral services were held Sunday, May 31, in Brookline, Mass. Mr. McNab was for about ten years head of the New England Southern Mills, operating the Pelzer, Tucapau and other plants.

GEORGE W. RAGAN, pioneer cotton manufacturer of Gaston county, passed away in Gastonia, N. C., the early part of June, following an illness of several months. Mr. Ragan had retired from active work a year ago at which time he was president of the Ragan (N. C.) Spinning Company.

M. L. MARCHANT, cotton merchant of Greenville, S. C., succumbed to a heart attack June 8. Mr. Marchant was one of the best known men in the southern cotton industry. He was a brother of T. M. MARCHANT, president and treasurer of Victor-Monaghan Company, Greenville, S. C.

Address of Robert R. West

(Continued from page 51)

ular or standard work-week, is not only unnecessary but positively detrimental to the best interests of the industry. There are several reasons which lead to that conclusion. The attention and skill required to operate modern high speed machinery and to care for the delicate operation necessitated by the short cuts now in use, cannot be carried on efficiently for such long periods of time. Attention flags, care becomes less accurate, the product suffers, the possibility of precision production becomes more remote. Where lost motion is not of consequence, where constant care is not essential and where superlative workmanship is not required, long hours may be tolerated, but under the necessities of modern cotton textile production and quality standards, long hours, on the part of workers, do not serve the purpose of efficient mill operation. Furthermore, there is no visible necessity for long hours. If they mean a continued increase in the amount of production of goods, there is no need for them in the markets. They just further burden an already fully satisfied market. What I am trying to say is this: The cotton manufacturer of today is engaged in a business requiring stability, skill and precision, and to permit those prerequisites to be interfered with and undermined by the disruptive practices of erratic wage and hour competition, is a heedless contradiction of ordinary common sense.

In endeavoring to describe briefly the type of a manufacturing operation which we are called upon to conduct in order to meet the competition facing us today, I have tried to make it clear that stability of hours and wages is essential. If that stability can be achieved and each unit in the industry can have the assurance that its operation will not be jeopardized by erratic action on the part of some other unit, there will be presented to the industry a much larger opportunity to conduct its affairs successfully. We are engaged in a great effort to meet the demands for technical excellence and that effort should be freed from the harassing effects of uncertain and capricious action in regard to wages and hours. Profit and stability will come to the industry, prosperity and security will come to our employees if we place our competition on the plane of technical accomplishment and remove the disturbing influences which come from tampering with the basic conditions of employment.

Those who insist on departing from the standards already set up by the industry, seem to feel that the rest should stand aside and view with complacency such procedure, or, humbly, hat in hand, go to them and respectfully request compliance. Are such departures to be condoned on the theory of rugged individualism and tolerated, regardless of their disastrous effects? The cotton textile industry cannot submit itself to that excess of tolerance. Sooner or later ways will be found to protect industry from such disrupting forces. We need not ask whether or not such ways will be found; the question is rather, will the industry itself provide and maintain the standards or will that function be left by default to some other agency? As responsible managers there are demands laid upon us for certain performance; demands for superlative technical competence; demands for that type of management which will produce stability, security and profit. Are we to supply the necessary leadership to attain such performance, or are we to abdicate that privilege by frittering away our opportunity because we neglect to do our part in establishing and maintaining adequate standards?

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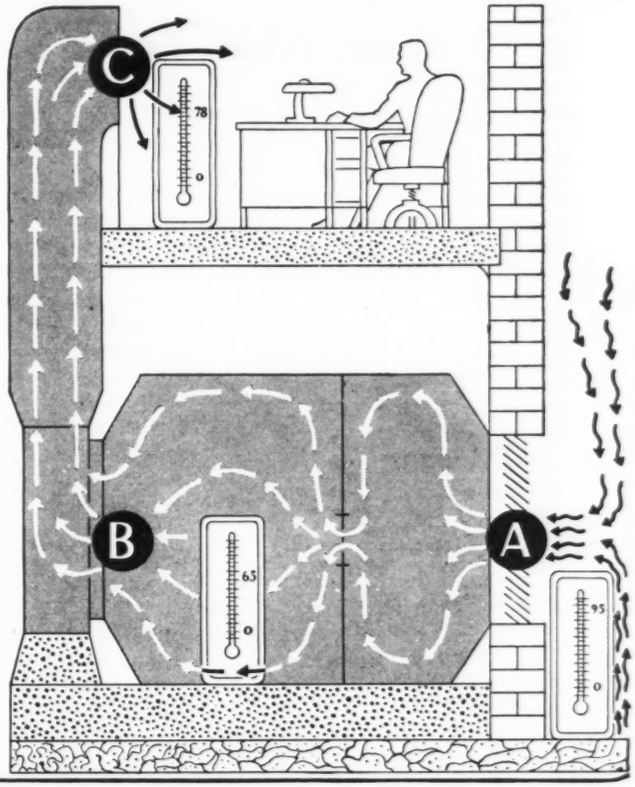

JOHNSON SERVICE COMPANY

MILWAUKEE, WIS. AND DIRECT BRANCH OFFICES IN ALL PRINCIPAL CITIES

PERSONAL NOTES

about Men You Know

JOHN D. GREEN, who for some time has been superintendent of the Cherryville Manufacturing Company, Howell Manufacturing Company, and Wildan Manufacturing Company, all located at Cherryville, N. C., has been made superintendent of the two plants of the Santee Mills, Orangeburg, S. C., and Bamberg, S. C. Mr. Green is a graduate in textiles of the Georgia School of Technology, Atlanta, Ga.

CHARLES CAPLIN, who has been with the Stehli Silks Corporation for a number of years, has joined the credit department of John P. Maguire & Company, Inc., factors, New York City.

FRED L. HEYES, who has been manager and superintendent of Pisgah Yarn Mills, Inc., Brevard, N. C., is now superintendent of Spencer Mills, Inc., Spindale, N. C.

O. G. MOREHEAD has been made general superintendent of the Mansfield Mills and Jennings Cotton Mills, Lumberton, N. C. Mr. Morehead previously held the position of superintendent of the Santee Mills, Orangeburg and Bamberg, S. C.

R. T. STUTTS has resigned his position as overseer carding at the Lockhart (S. C.) plant, Monarch Mills, to become superintendent of the Woodside Cotton Mills Company, Simpsonville and Fountain Inn, S. C.

F. C. FOWLER has been promoted from overseer weaving, second shift, to the same position on the first shift. Chadwick-Hoskins Mill No. 1, Charlotte, N. C.

FRANK GURLEY is overseer carding, Fitzgerald (Ga.) Cotton Mills.

K. C. SCARBORO has been made overseer of weaving at the Imperial Cotton Mills, Eatonton, Ga., and J. N. ARD, Mobile, Ala., is the night overseer. J. M. GAZAWAY was promoted to overseer carding.

RENDER JIMERSON, who has been overseer spinning at the Rushton Cotton Mills, Griffin, Ga., has been made overseer of carding and spinning at that plant. JAKE MEHAFFEY is overseer weaving.

E. J. LEES has been appointed chief engineer in charge of engineering and research of the National Tool Company, Cleveland, Ohio. Mr. Lees, formerly associated with Lees-Bradner Company, is a pioneer in the machine and small tool industries. His contributions to progress and developments in these fields include a long list of inventions and design applying to heavy milling machines, helical and worm gear drives for milling machines and other applications, etc. He was instrumental in inventing and designing the first thread millers made and used in the United States; he invented the first commercial gear generating grinders in this country; and has made other contributions to scientific and automatic machinery.

Mr. Lees

JOHN M. GEER, assistant purchasing agent of The Kendall Company, Paw Creek, N. C., has become assistant purchasing agent of the Carolina Cotton & Woolen Mills, Spray, N. C., under W. G. MCCOLLUM, director of purchasing.

T. LEROY SMITH, Charlotte, N. C., sales representative of the Clinton Co., Clinton, Iowa, who some weeks ago suffered a partial stroke, has been returned from the hospital to his home on Hawthorne Lane, Charlotte, where he is recuperating.

J. R. KIRKPATRICK is now overseer carding at the Lockhart (S. C.) plant of Monarch Mills; formerly he was with the J. W. Sanders Cotton Mills, Magnolia, Miss.

A. M. FINCHER, who has been with the Bibb Manufacturing Company, Macon, Ga., for a number of years, has been made overseer spinning, twisting, and winding, Atlantic Cotton Mills, Macon, Ga.

LESTER BROOKS, formerly salesman for the Harris Manufacturing Company, Atlanta, Ga., has resigned his position to become overseer cloth room. Rushton Cotton Mills, Griffin, Ga.

CHAS. A. BROOKS has been transferred from overseer spinning at the Georgia-Kincaid Mills No. 3 plant, Griffin, Ga., to the same position at the No. 2 plant. J. R. JINKS exchanged places with Mr. Brooks.

F. T. ROBERTS has been made production manager of the Slater (S. C.) Manufacturing Company. C. H. BARTON, who formerly held this position, has been made assistant superintendent of the company's plant at Slater, Mass.

J. L. BRANNAN, who has been with The Seminole Mills, Clearwater, S. C., is now connected with the Mooresville (N. C.) Cotton Mills.

BRUMLEY D. PRITCHETT has been made overseer weaving of rooms No. 1 and No. 2 at the Georgia-Kincaid Mill No. 1, Griffin, Ga. Mr. Pritchett is a graduate of the textile department of the Georgia School of Technology, Atlanta, Ga., class of 1930.

F. A. TOWNSEND, formerly superintendent of the Sibley Manufacturing Company, has been made vice-president of this mill and the Enterprise Manufacturing Company, Augusta, Ga. He is succeeded as superintendent at Sibley by C. J. ASHMORE, formerly superintendent of the Rushton Cotton Mills, Griffin, Ga.

J. BEECHAM WRAY, who has been with the Renfrew Bleachery, Traveler's Rest, S. C., has been selected as overseer of bleaching and finishing at the Spray Bleachery and American Warehouse of the Carolina Cotton and Woolen Mills, Spray, N. C.

THOMAS H. WEBB, who recently resigned as president of the Locke Cotton Mills, Concord, N. C., has become president of the Davidson (N. C.) Cotton Mills. Mr. Webb succeeds MARTIN L. CANNON who became chairman of the board. C. W. BYRD, formerly secretary-treasurer of the Locke mills, holds the same position with the Davidson Cotton Mills.

LEWIS M. CARPENTER has resigned as general manager of the Drayton Mills, Spartanburg, S. C.

J. H. DAVENPORT has been elected president of the Davenport Hosiery Mills, Chattanooga, Tenn., to succeed the late R. B. DAVENPORT.

W. P. JACOBS, secretary of the South Carolina Cotton Manufacturers' Association, was recently installed as president of Presbyterian College, Clinton, S. C. Mr. Jacobs is the youngest college president in the State.

(*Obituary items on page* 78.)

Machinery which pays for itself in a fraction of its operating life renders old equipment obsolete.

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and 3,118 Warpers

HAVE BEEN REPLACED AS

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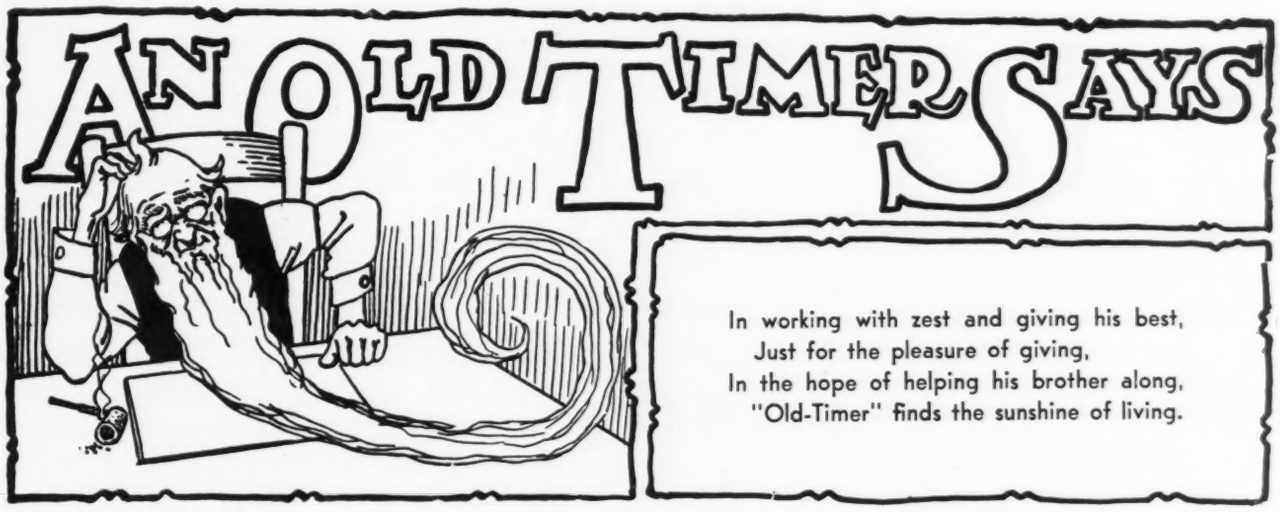
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"Dog Sense"

[Since this article is written in conversational style, it should be borne in mind that those paragraphs in *italics* represent JIM's part of the conversation, and those in regular type represent OLD-TIMER's part.]

COMMON SENSE—yes, you have heard of that; in fact it is one of our most common expressions. Then there is horse sense, an expression in such general use that you can remember hearing it ever since you were a boy.

But, dog sense—

Well, anyway, JIM and I went to town the other Saturday, and while going down the street:

Look, OLD-TIMER, *isn't that a fine looking dog? Looks something like Rin-Tin-Tin we have seen in the movies.*

Yes, JIM, and notice how he is pulling on that harness. I'll bet he is full of pep. Gosh! He stopped at that street crossing. [And it so happened that there were no other people at the crossing at that time; just the man and the dog.]

Come on, let's follow him a few blocks. I believe I saw something.

Of course you did. You saw a man and a beautiful dog.

Yes, and the man is blind and that dog is leading him.

Don't be funny, JIM, the man would not be walking that fast if he was blind, and besides, didn't you see him stop for that red light?

That's just what I wanted to find out, OLD-TIMER. *Come on.*

[By this time we were almost running trying to catch up with the man and the beautiful dog.]

See there, he's stopped again.

Sure, I see it. I was beginning to notice that the man did not seem to be walking entirely naturally.

[It's green light and here we go. We passed him in order to get a look at his face.]

Holy smoke, JIM, he sure is blind, and that dog has been trained to lead his master.

[His master could even tell when the dog came to a step-down or a step-up, because he kept a tight pull (as he explained to us) on the strap which connected to the harness around the dog's shoulders. Therefore, when the dog stepped down or up he could feel it through the strap. He also explained in somewhat lengthy detail that he and the dog went to school together, that is, they were trained together by a trainer. The trainer was training a lot of dogs all of the time and when he had a sale for a dog, the blind man for whom the dog was bought would stay with the trainer until both he and the dog understood each other.]

That dog surely acts just like he had sense.

Of course he has sense, JIM, and although it is dog sense—

Yes, I know what you are going to say, OLD-TIMER, *and I am about ready to agree with you.*

When you speak of a man as having common sense or using common sense in a transaction, you are paying him a compliment, and when the term horse sense is used it has practically the same meaning; in fact in some instances I suppose they could be considered as having identical meanings—

And now here comes along a dog that looks like he might have more sense than most horses anyhow; therefore I guess we are going to add one more kind of "sense" to our knowledge.

Sure, JIM, and would it not be wonderful if overseers and superintendents could be as easily trained as a dumb animal like a horse or a dog. The trouble with most of us is that we are generally doing our best trying to fool our teachers (the men who are training us) into the thought that we know so darn much more than we really do know.

If we could only realize the intrinsic value of advice it would save many an overseer and superintendent from making a lot of mistakes that they do make, but in many instances it would be the means of saving a man his job.

I don't believe I quite follow you, OLD-TIMER.

Well, JIM, you see so darn many of us are endowed with so much egotism that we do not want to listen to advice from other people. Years ago it was much worse than it is today. I have seen the time when a

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THE NAME THAT STANDS FOR TOPMOST QUALITY AND PERFORMANCE

weaver would not think of saying anything to a loom fixer about how to fix a loom because he knew Mr. Loom Fixer would bawl him out and tell him to attend to his own business.

Just to illustrate my point, let me tell you of a little instance that occurred years ago—in fact it happened while the second order of automatic (Northrop) looms was being installed here in the South. I was working with the crew erecting the looms and when we had all of the looms running, that is, all of the looms had warps on them but they were not all running by a fairly large percentage—anyway, the erecting crew was sent on to another job but I was left there as a "trouble man". My job consisted of making reports to the loom builders concerning the different "troubles" the looms were giving the loom fixers—making reports on parts which were breaking excessively, etc.

The overseer approached me one day and suggested that I try to find some way to prevent the loom from stopping when it threw out two filling quills. He explained that the stoppage from this cause was so great that he believed if we could find some way to have the loom continue to run when it broke the filling while changing that he could set the let-back on the take-up so it would not make a thin place.

This of course sounds simple to weave room overseers today, but, gosh, it did not sound simple at that time. I had been experimenting several days when I reported to the overseer that the only way I had found was to take the "filling fork slide drop" off of the loom or break off the small end (we called it the tail) which pushed the starting handle off.

He would not consent to doing that and told me to continue my efforts. I had been spending most of my time on one set of looms which were being operated by an extra good weaver by the name of Peterson. I do not remember his given name.

One day Peterson came up to me and said: "What are you trying to do to my looms?"

I explained that I was trying to find a way to prevent his looms from stopping when they would break the filling when changing.

I noticed that he blushed and walked away very quickly. In an hour or so he came back to me and said, "Are you kidding me or is that what you are actually trying to do?" I assured him that I was in earnest, and then he rather nervously said, "I'll show you how if you will not tell the overseer on me."

"Good Lord, Peterson," I said, "the overseer will be very much pleased, so come on and tell me and you will save me a lot of work."

We did not have overalls in those days, and most weavers wore aprons with a large pocket to carry filling in. Peterson reached down into his apron pocket and drew out a handful of small pieces of leather, took one and placed it under the filling fork slide drop and told me to try it. Of course the drop could not drop, so there was the solution—no change of the loom—no expense—and a perfect job. It was used on all the looms for two years. I know because I stayed there two years after that.

Peterson explained to me that he had been using these on his looms for several months, but was careful to take them out when the loom fixer came to his looms because he knew he would be bawled out and maybe discharged.

Most all human beings really want to give advice, JIM, they get a lot of pleasure out of it, but so few people appreciate advice.

Yes, OLD-TIMER, *you sure are right there. I know, because no dad ever tried any harder than I have tried to give my boy the benefit of my long years of experience, but no, he has to go on and make the same mistakes that I made when if he would only profit by my mistakes he would get promotion much faster than I did. Take for example where an overseer or superintendent has worked for several years probably to find the best way to do a certain thing. He would gladly tell his brother overseers and superintendents but many is the time he hesitates to tell them for fear they will consider that he is trying to be smart.*

Thank goodness the association meetings and the textile magazines are doing a wonderful work in eliminating this feeling. I remember many instances where the older crowd are coming out of this condition. Only about five years before Mr. Sizemore (formerly treasurer of the Southern Textile Association) died, he very proudly related to me his plan for giving to the association members a system he had adopted on his warpers (old style beam warpers) that he had found very successful and of much help to his mill. He was getting a lot of pleasure out of being able to report something no other member had done.

Now back to dog sense again. You see, JIM, common sense is usually considered to be the sense that a man acquires from experience and horse sense by inheritance, while I suppose we will have to class dog sense as that which we are taught.

The big problem with most overseers and superintendents is that they are too darn hard to teach—first, they always think they know more than the teacher, and when they don't think it they usually try to bluff him into thinking they do. In other words, most overseers and superintendents actually set up a resistance toward anyone offering advice. I will admit that this sounds unorthodox and very likely the average textile man has never stopped to think it over, but I know many who can remember instances in their own careers where they have attempted to give advice and saw that their advice was not appreciated. Well such people have not got that new sense we have discovered—dog sense.

One other rather strange fact is that so many young men are unappreciative toward the man who really was responsible for their promotion—just like a great many men never show their appreciation to their parents. To my mind that shows to a large extent the kind of material a man is really made of.

When an overseer or superintendent takes a young man under his supervision, and not only gives him sound advice based upon his experience as overseer or superintendent, but takes particular pride in giving that young man every advantage he possibly can, boosting him to his friends, etc.,—

Then to see that young man become a success,

(Continued on page 101)

HORNBUCKLE

A name long identified with

PACKAGE — BEAM — ROVING
DYEING MACHINERY

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ANNOUNCES new organization — new plant — new equipment — amply financed, manufacturing dyeing and drying machinery with improvements found in no other machines.

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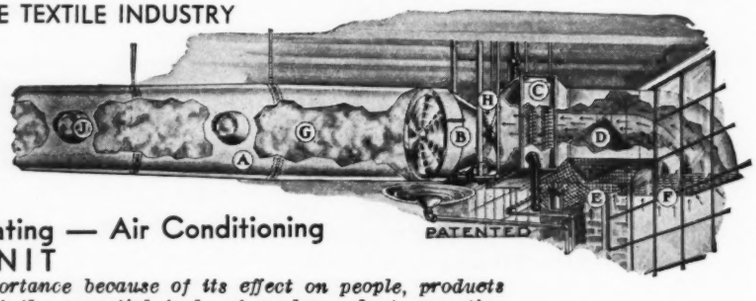

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Effect of Yarn Strength on the Breaking Strength of Cloth

A discussion of the inquiry which projected the theory that cloth strength might be increased—through better penetration of size—by decreasing the twist in the yarn. What do you think? . . . . .

EDITOR COTTON:

I was greatly interested in the question as to the effect of yarn strength on the breaking strength of cloth, and the increased penetration of size secured from using less twist, submitted on page 115 of May COTTON by "CONTRIBUTOR NO. 6486". He asked whether the maximum breaking strength in cloth is obtained with the yarn twist which gives the highest skein break in the single yarn; advancing the theory that the size might not penetrate best into yarn carrying the twist giving the highest skein break, but that what might be lost in yarn strength by reducing the twist to a slight extent might be more than offset by a better penetration and better break due to the size. I would like to offer the following comments:

First, that the yarn having the highest skein break will not have the greatest cloth strength, size and cloth construction considered. This I know to be so because here in this mill we were using a two-ply twisted yarn in one of our constructions demanding a strong selvage. The yarn had a skein breaking strength of 160 pounds and still we had complaints about weak selvages. We made up a singles yarn corresponding to the two-ply yarn with a breaking strength of only 131 pounds; actually 18 per cent less strength in the skein than the two ply yarn, but having about 10 per cent more twist. This greater twist increased the elasticity over the ply yarn by almost 30 per cent and in actual usage it seemed to have put an end to our selvage problems as far as strength was concerned. The actual increase in strength at the weakest point—the filling change—was 25 per cent.

We did not secure this result as simply as this may read, but on the contrary had many trials of different loom settings, different winds on filling quills, new types of quills, selvages made up with different numbers of ends drawn in different manners, changes in cam settings, and a lot of plain hard work on everyone's part. We did try a tape selvage attachment on a loom and found that this gave us exactly what we wanted, a selvage equally strong at all points. However, its cost would prove excessive to install and so we kept on digging until we found a way out. It might be well to add here that this selvage trouble, while present to a small degree in our light and medium constructions, was not giving any trouble there. In our heaviest constructions it was very noticeable. The total number of individual tests made on this subject ran well over 2,000. On one series of tests alone, we made 800 single breaks. So, I think it was thorough; besides, we no longer have any complaints about weak selvages from our finishing plants, and as one man would put it, "Ain't that sumpin'."

Answers Question by Test

Now, here were two yarns, one a two-ply twisted yarn with a high skein break, a fair single strand break and an average elasticity; the other, a single yarn 29 pounds weaker in the skein, with the approximate single strand break, but a much higher elasticity. When woven using the same number of ends in the selvage, the yarn with the higher skein break made a weaker selvage than the yarn with the much lower skein break. To my mind this is a good answer to the question, "Is the maximum breaking strength in the cloth obtained with the twist which gives the highest skein break in the single yarn?"

To continue, I would like to say that I do not know just which twist multiple in the single yarn will give the highest break in the cloth. I believe it to be in the neighborhood of 5.00 X the square root of the count. From different tables of results published and from my own files, I have seen that the highest skein break is obtained at from 4.00 to 4.50 X the square root of the count, depending on the length of staple and character of cotton. I recently saw an interesting article on this subject, "Cotton Yarn Testing, as an Indication of Weaving Qualities," by David Atkinson, representing a lecture which he presented to the Preston and District Textile Managers' Association in England in November, and reproduced in the December 5, 1935, issue of the *Textile Bulletin*. This showed a summary of results based on four different twist multiples, and it was

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

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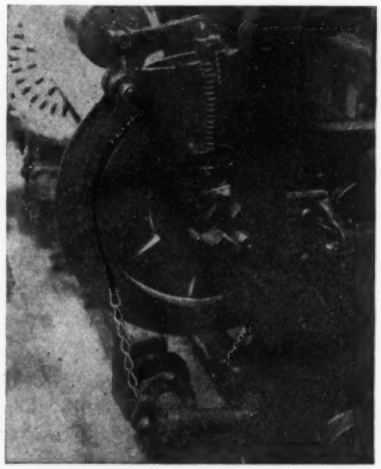

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stated that in the loom the warp breakage on the yarn spun with a multiple of 4.1 had two and one-third times as many warp breaks as the yarn spun with a multiple of 5.00. Also the yarn spun with a multiple of 4.5 had nearly twice as many warp breaks as the higher twisted yarn. A further interesting point in this article is that the yarn with the softest twist took on 9.7 per cent size and the yarn with the highest multiple took on 10.6 per cent size. The yarn with a multiple of 4.1 took on the most size with 12.4 per cent. This should certainly prove of interest in connection with your discussion.(*)

As for the effect of the size on the strength of the yarn—I grant it. But, in our plant we make two size mixes, one a light but adequate mix, and the other about 6 per cent higher. The yarn slashed with the heavier size is only 1 per cent or 2 per cent stronger than the other but is not quite as elastic. However, while the lighter size warp is weaker but more elastic, it isn't very much weaker or very much more elastic. It would appear that the difference in the two size mixes should be sufficient to determine the value of the strength of one yarn over another, and since all of our warp is made with the same amount of twist, it follows that reducing the twist and increasing the size will not bring up the strength of the yarn.

Penetration of the yarn with size should logically be assumed more easy of accomplishment with a lighter twisted yarn than with a heavier twist. This should be closely observed by checking the "penetration" optically where possible, or by checking the elasticity of the yarn at regular intervals, when no optical instruments are available. Too deep a penetration will make a yarn with little or no stretch, for if the strand is completely impregnated with starch, it will allow no possible movement of the fibers upon each other in any way. Such a yarn under tension would have the comparative properties of a steel chain as against a well made wire rope. One would have no "give" at all, the other would be able to withstand a peak load and to return to its original position. Some wire ropes even have cotton rope centers in order to utilize the elastic properties of cotton. So it is with yarn, unless a sized yarn has an unstarched center core to retain its elasticity, it will be of no value to the weaver, and he will do well to shun it. After all, the chief reason for sizing warp yarn is to "lay" the projecting fibers of the yarn and to protect them from being rubbed up again. Beyond this, the yarn itself is not benefited.

Since the elasticity of the yarn is—for weaving purposes—as important as its strength, it should follow that the addition of size should theoretically strike a balance between these factors. Of course most weavers who size heavily realize that a sized yarn has more elasticity at a high humidity and take advantage of this by maintaining a high humidity in the weave room.

Most practical spinners operate with as low a warp twist as is consistent with good running work or the demands of their product. To reduce the warp twist with the idea of making up strength later with size would run into the danger of high end breakage, weak yarn, excessive stoppage in spooling, warping, and slashing, with a good chance of bad weaving to look forward to. Add to this over work and discontented employees plus complaints from the executives, and one would not want to be in the place of the man responsible.

An Engineer's Idea on This Subject

Sometime ago I had the pleasure of talking with an experienced textile engineer who to my way of thinking has the best ideas on mill organization with which I have come in contact. His idea was that a warp twist multiple of 4.40 to 4.50 would give a strong elastic yarn that would spin well, and after spooling, warping and slashing, still have plenty of reserve strength to weave with a minimum of end breakage and turn out a good strong cloth. For filling, he thought a low spindle speed and a soft twist was the best arrangement. The low spindle speed would spin the yarn with the least strain, and the low twist would keep up production. Such a yarn, in his opinion, if spun well, should weave well, and because of the soft twist would be soft enough to flatten out in the cloth, thus filling in the interstices between the harder twisted warp threads, giving a good appearance, a good cover, and a good feel to the cloth.

One thing more: it may be well to point out that the maximum strength of a skein break is reached with a lower twist multiple than the single strand breaks, because the single strand average break represents an average of a number of individual breaks including high, low and medium breaks; while the skein test is really an average of medium and low breaks. Although it is supposed to be the average of a large number of single strand breaks, friction, packing, distribution of tension, and variation in the individual yarn stretch, influence the results.

In conclusion, let me state that size will not take the place of twist in yarn.

J. L. D. (S. C.)

(*) The discussion referred to by this correspondent represented a quotation made by David Atkinson from an extensive report by Morton and Pollard which originally appeared in The Journal of the Textile Institute, February 1934, published by the Textile Institute of Manchester, England. Mr. Atkinson's summary of the report follows:

"Four distinct yarns were spun from similar cotton, making 36s ring yarn with twist constant of 3.5, 4.1, 4.5, and 5.0. The yarns were subsequently woven (at the Eccles Spinning & Manufacturing Company's mill at Patricroft) on four Northrop automatic looms, producing a 28½-inch cloth, 63 x 64, 36s warp and 40s filling. The cotton was American about 1-inch staple The test lasted 135 hours, the warp stops only being recorded. As will be seen from the accompanying table summarizing the results of the test, the lea (skein) test of the four yarns placed them in the order, 3-1-2-4, while the actual weaving test showed them to be 4-3-2-1. The yarn with the twist constant of 5.0, although apparently 12 per cent weaker than the 4.1 yarn, actually had only half the breakages in weaving."

The table mentioned, giving a summary of the test referred to, follows:

Relation Between Tests and Weaving Quality

(Summary of Experiment By Morton and Pollard)
Warp yarn, 36s American; 1 in. staple

Twist Constant	3.5	4.1	4.5	5.0
Lea X x Counts	1,641	1,818	1,673	1,589
S. T. Strength:				
Unsized Oz.	4.94	8.11	7.98	7.8
Sized Oz.	8.7	9.2	8.85	8.94
S. T. Extension:				
Unsized in.	1.10	1.2	1.11	1.21
Sized in.	0.59	0.62	0.64	0.74
Amount of size	9.7%	12.4%	11.2%	10.6%
Breaks in weaving	154	147	118	65
Breaks per loom per hour	1.17	1.09	0.89	0.49

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Preventing Tangled Slubber Bobbins

Some general remarks on the subject

EDITOR COTTON:

This replies to the inquiry of "J. R. (ALA.)" on page 79 of the January issue of COTTON: "What is the remedy for the elimination of bobbins of slubber roving tangling after being about two-thirds full?"

The problem of tangled roving creates a very distressing situation in view of the resulting annoyances that we must endure, such as waste of good roving, trouble to the speeder hand in taking care of it, the demoralizing effect upon the minds of the workers who witness these conditions, and weakening of productivity.

The many parts of the action of the roving frame present a number of problems which sometimes become difficult to even the most capable, either by experience or observation. The building motion must be thoroughly set, and all worn or imperfect parts replaced with perfect parts. A poorly made new part is a very poor investment. Lay gears must be in perfect condition, properly set, with the correct number of teeth for the number of roving being run. The flyers must be in good condition, perfectly balanced and pinned, flyer pressers well fitted and correctly shaped, the tops of the spindles must be in good condition for the flyers to fit properly, and broken tops must never be permitted.

Bobbin shafts and bobbin shaft bearings must be kept in the very best of condition, not worn or binding. Bobbin gears are sometimes "tricky" and may skip a tooth without being observed. These little fellows need lots of attention, and they cause tangled roving when they jump. Imperfect bobbins, broken off at the bottom, bobbins of two or more sizes, will hinder the making of quality roving. Worn spindles and worn bolsters make spindles vibrate, and a vibrating spindle does not produce good roving and will make tangled roving.

Cones, top and bottom, come in for consideration in connection with a tangled roving problem, in that they may get out of true because of worn shafts, shaft bearings on heads, causing irregular winding of roving on bobbins. A bad cone belt has no place on a pair of cones, and sometimes a new cone belt can be very bad. It must be the proper length and width, and of the right material for good work.

A most important point is to place the correct taper gear on the frame. A taper that is right will save a lot of tangled roving. If all other conditions are right, too short a taper will cause trouble and require correction.

Lifting racks binding, a broken tooth in the lifting rack, lifting rack gear worn or loose, or a broken tooth in the lifting rack gear, will hinder the free movement of the carriage and cause tangled roving.

A very close observation of the entire building and winding system of the slubber or fine frame during an entire doff from start to finish will reveal the cause of the trouble, for as the tangled bobbins show up at two-thirds full, the cause is very evidently at that point in the winding or building mechanism during the journey from empty to full bobbins. Summing up, we must remember that the fly frame came into being with very fine sensibilities, so to speak, and they possess certain principles of action that demand respect. So when they refuse to give us 100 per cent product in quality, we must look for the reason and correct it.

Each individual part of the mechanism involved must be in perfect order and the proper change gears used for each hank roving.

A frame may produce an occasional tangled bobbin for a period of days and suddenly, under less favorable conditions, slight variation in grade of stock or other causes that influence the fly frame operation, will show an alarming number of tangled bobbins.

The proper care and attention of fly frames of all sizes is of extreme concern, and the better condition we keep them in, whether old, middle-aged or new frames, the better they will respond with production of quality.

In presenting this question, "J. R. (ALA.)" has given us a really worthwhile subject. I have treated the question rather broadly, but hope I have covered the ground sufficiently.

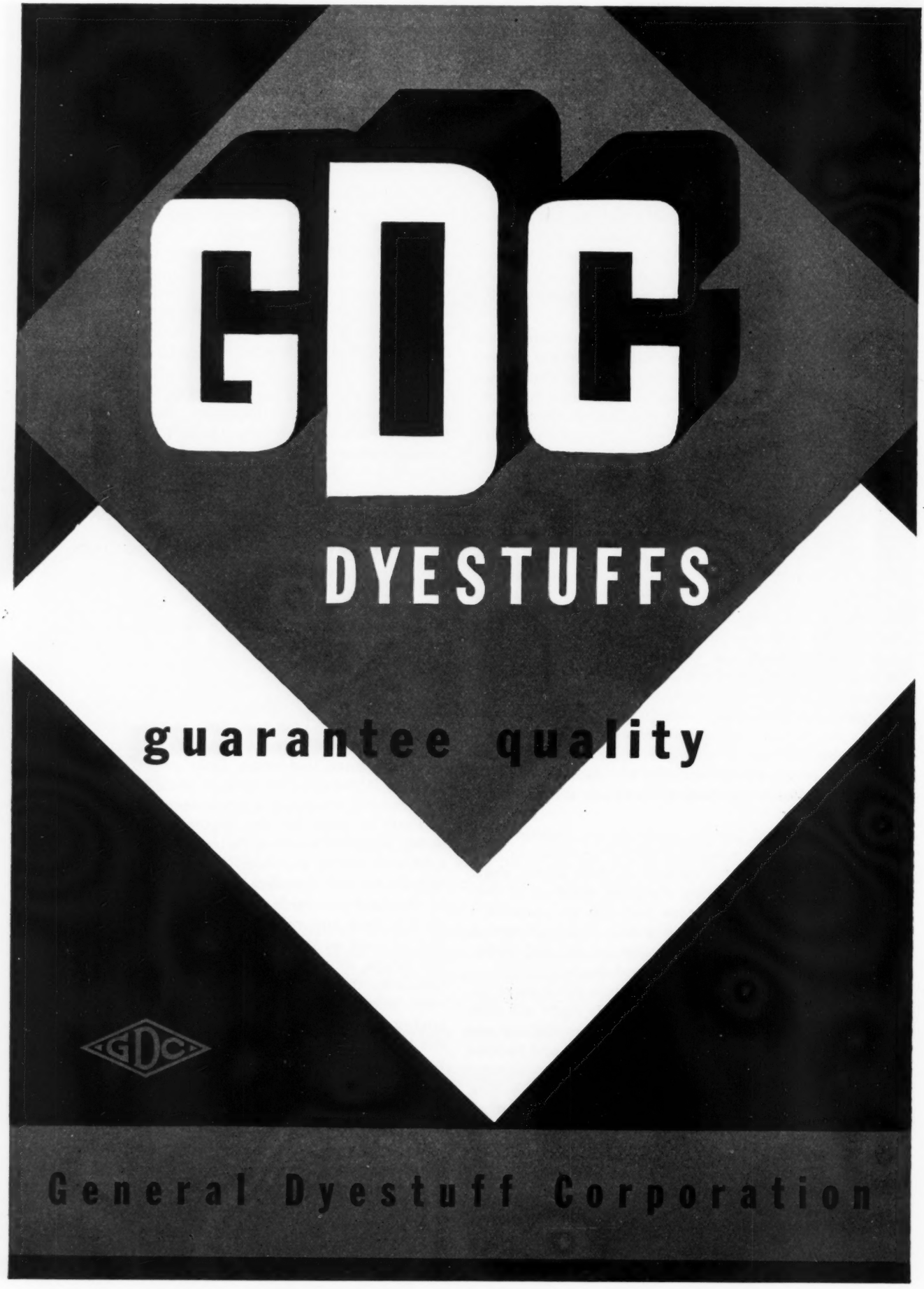
CONTRIBUTOR NO. 4774.

My Ideas on Taking Care of Top Drafting Rolls

EDITOR COTTON:

Because of certain definite facts pertaining to the manufacture of yarn, we find that top rolls are too often neglected in every mill. I had occasion a short time ago to inspect the rolls in a card room in this section and found that the back top rolls were quite badly grooved. This condition is prevalent to a degree in practically every mill. We hear more or less of uneven yarn, bad sizing, flaky yarns, and of course we take it for granted that on each frame (speeder) the traverse motion is a great necessity, and without a doubt is used for the protection of all rolls, by being made to traverse in each direction from the center as far as possible. Unfortunately, this is not enough for the complete protection to the full length of the drafting surface of the top roll, and because of this fact our rolls become uneven very quickly, and as soon as these rolls groove from contact with the cotton, any kind of trouble is likely to occur. For instance, if perchance a roll grooves enough that even one-eighth of the diameter of the strand of roving is not being held firmly by the pressure of the top roll against the bottom steel roll, the middle roll immediately becomes the feeding roll instead of the back roll and no end of trouble ensues. Of course we have yet to learn of any type of top roll that doesn't groove, so what is the solution?

It is essential that we have a roll with enough resiliency to pinch the strand securely so that all fibers may be drawn evenly and equally. Some roll builders try to build a resiliency that really is so hard that there is a slippage of fibers upon the sides of the slivers, allowing a flow of fibers to pass without being held for drafting. I find that the origin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of roll trouble starts with the desire to maintain a large production by heavy slivers being *overdone*. Even our machinery catalogs recommend slivers graded toward the heavy grains per yard so that a larger production will show in the figures, and always the heavier slivers tend to create adjustments by men who are in charge who never really handle the bulk presented efficiently for true even yarn and cloth quality.

Where heavy slivers are ordered, a heavier weight is necessary to hold that heavy sliver and this is also more essential where a greater number of slivers are in the doublings. Now it is evident that under the regular system of drafting, doublings are quite necessary and they are required to overcome the real troubles that are put into the operation of yarn making by the continued use of heavy slivers, because heavy slivers and bulk (doublings) make the machinery call for freak roll settings, extra pressures. rolls set freakishly, etc., to handle the bulk of the different lengths of staples, and always where bulk enters, extra weight is essential or a freak roll setting must be applied to produce a smooth yarn so necessary to even yarn or cloth. This is all because high production bulk is adopted and how is it possible to keep the top rolls from causing the troubles we have with them when we allow this undermining bulk and high (weight) production to govern our mills?

Solution to Roll Troubles

Without a doubt, the top roll is really the foundation of all our mills as they are constructed today.

The real solution of our roll trouble should be based on four things. First, light slivers should be adopted. Second, the proper weight should be found to handle the amount of cotton used properly by changing to light slivers. Third, we should find the correct roll setting and draft (combined) to handle this light sliver, doublings, staple, weighting, etc. Fourth, I believe the application of a dressing formula that keeps the surface of the top roll true and resilient as when they came from the roll covering shops is a help.

These suggestions, I know, open up no end of controversy for a great many men think that without heavy slivers it is impossible to get large production. I know also that heavy slivers tend toward large production, but I also know that heavy slivers make men do things in order that they might get large productions that make them spend a greater amount of money than they should, and I know that their machinery causes them more trouble, that their rolls are never really in condition to give them good yarn and cloth, and that machine efficiency is invariably low and eventually freak twists have to be applied where flutes on the steel rolls are worn down by constant slippage of the top rolls not properly weighted to hold the excessive bulk passing between the top and bottom rolls, that these steel rolls have to be repaired oftener and wear quicker afterwards, that roll bills mount up to high peaks, that roll coverers have to knock their prices down to rock bottom in order to keep the covering job for the mill, and in turn use a poorer covering that doesn't assist the mill in keeping its rolls in good condition, for with a poorly built roll, costs always mount and bad running work results.

When slivers are of the proper weight per yard, the settings are so much more easily handled and the speeds can be adjusted to handle perfect production, the rolls will handle the slivers better, and better yarn with higher efficiency is the result.

So much for the difficulties which arise from the abuse of the top rolls. Now my version of top rolls is that while we have used leather covering with different kinds of flannel beneath, we have never reached a point in covering with leather that has given positive results for any roll (applied to our system of drafting of today) which has been foolproof, for no matter what the cost of covering, the quality of leather or the cloth, when the roll has been allowed to run a day in any machine that roll is more or less frictioned to a condition that in a very short space of time begins to show its trend toward another covering. The cork roll is built in as far as possible to meet the proper resiliency to contact the trade of which it is a part but it also (not so readily as a leather roll) after a short time shows the same trend.

Now these conditions, if properly shouldered, should be equally shared by the builders of the rolls and the users of the rolls, and everyone should assume his part and work to eliminate this something that really spells dollars and cents to most everyone. Until something better comes along from our builders and users the only thing that I can see ahead to help in the saving of this matter is the use of some dressing that can be applied to both kinds of rolls to help extend their lives under the conditions.

A. B. C. (R. I.)

On Combers, the Settings Are Made from Here

In which "Jock" disagrees with other contributors as to where settings are made from on combers; and he tells why . . . . . .

EDITOR COTTON:

I am going to bring up one point that has been mentioned time and time again, in fact I think every person who writes letters on combing mentions it. If I remember right, I feel sure everyone has stated all the settings were made either directly or indirectly from the steel detaching roll. I think I am the only one to disagree with that statement; by my saying that all the settings are made either directly or indirectly from the center of the cylinder shaft. Also, I am not going to let it go by just making that statement, but I shall try and prove it here by explaining *why*.

Any reader of COTTON knows that the index wheel on a comber is put there for one thing, and that is for setting and timing the different parts. That index wheel is marked or numbered on the outside circumference, also the wheel is keyed onto the cylinder shaft; and attached to the frame is a pointer that is

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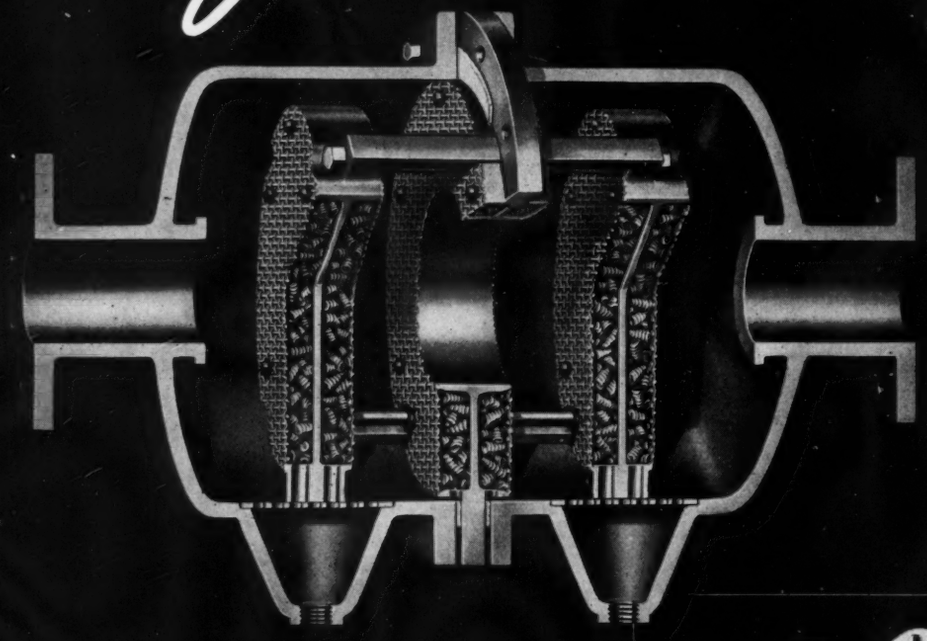

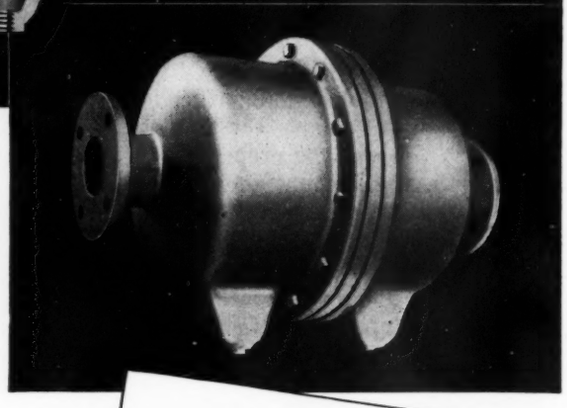

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directly over the center of the index wheel and the cylinder shaft. Now why is the index wheel put on the cylinder shaft and the pointer directly over the center of it? Just for one thing, and that is for any setting we turn the pulley of the comber until the number of the index wheel we want is directly opposite the pointer, not forgetting the pointer is over the center of the cylinder shaft, then we proceed with the setting or timing.

Now, if all the timings or settings are done from the detaching roll, whether directly or indirectly, why bother with using the index wheel; simply because we must use it and we cannot deny the fact? When we set the nipper knife to the half lap, do we use the detaching roll; no, we use the index wheel and pointer? To time or set when the nippers close, we use the index wheel again, not detaching roll, don't we? When we set the top comb the same applies then. When we time the detaching roll, the very part that so many men claim all the settings are done from either directly or indirectly, we simply go to the end of the comber and turn the pulley to whatever number we desire on the index wheel, according to the combers we are operating. This should be convincing enough. We do have to use the detaching roll to set or time the index wheel or center of the cylinder shaft.

More on the Detaching Roll

Here is another thing concerning the detaching roll—just to remind the readers I am going to quote "CONTRIBUTOR NO. 6406's" statement in the December 1935 issue, just because he was the last writer to make the statement. It is found on page 84 in the seventh paragraph: "All settings are done from the detaching roll, whether directly or indirectly, so this roll is the first to be set after the detaching cams are tight." Then he ends the paragraph with this sentence: "When the caps are all tight and the roll turns freely, it should clear the segment by a 22 gauge." All the settings are done from this roll, yet this roll has to be set, and where from? It is set from some part that is attached to the cylinder barrel which is attached in turn to the cylinder shaft; the center of the cylinder shaft is under the pointer.

I am not trying to get away from the fact that we do use the detaching roll when doing some of the settings. Setting the cushion plate and feed roll to the detaching roll are about the only two settings where we do not use the index wheel. This is done when the nippers are out for the feed roll setting; naturally the nippers are in the combers when the cushion plate is set, with the segment under the nippers, and if it comes to a showdown, we have to have some certain number of the index opposite the pointer. Some readers may claim that these two settings or others are made from the detaching roll, but they are all made directly or indirectly from the center of the cylinder shaft, and they cannot get away from that fact no matter how they try. All I can say to anyone who does not agree with me is to state the reasons for his claims the same way that I have done.

In the December 1935 issue, page 86, "CONTRIBUTOR No. 6406" states in his fourteenth paragraph: "The circular brushes should not be set deep into the half laps, as they will pack them instead of clean them." I do not agree with this because the brushes should be set to the base of the needles, which is the brass strip, then they will clean the half lap. The brushes do not pack the half laps because they are turning in the same direction that the half laps do; also the needles are set in the half lap at such an angle that the needles are practically pointing in the direction the half lap turns, and the brushes clean the needles from the base of the needles upward. If the brush turned in the opposite direction to what it does now, then the brush would have a chance to pack the waste into the half lap. If the half lap gets packed at the base of the needles, the brushes are not doing their work; they need raising, turning or changing according to their condition. The brushes, after running so long, become bent or lean and they lose their cleaning power—the half lap gets packed. Turn the brushes, and if necessary raise them a little and see what happens; the fibers of the brush get straightened out because the fibers are forced in the opposite direction when coming in contact with the half lap. This increases the cleaning power and keeps the half lap clean.

JOCK (MASS.)

Temperatures and Humidity in the Weave Room to Prevent Bad Start-Ups

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6436", who requests on page 89 of the January issue information concerning the temperatures and relative humidity kept in the weave room over the week-end,* I should like to submit the following:

We also were troubled with the filling sloughing off on Monday mornings due to the yarn having dried out. And too, the warps would not start up as well at first because the yarn had become brittle.

Now we have a ruling that the temperature is not to drop below 70 degrees at any time during the week-end and that it must be up to 80 degrees by an hour before starting time Monday morning. We do not run the humidifiers over the period we stand from Friday night to Monday morning, but we do have a reliable man come in about an hour and a half before starting time and turn them on then. This, keeping the weave shed warm, protects our harness from the cold and starting the humidifiers a little while before pulling the shifter handles on gives our warps the proper amount of moisture.

As to the prevention of filling sloughing off, I might say that we condition all our filling and that we do not have so much trouble since we began doing it. This conditioning is primarily to eliminate kinky filling and to set the twist, but the chemicals seem to remain in the yarn longer, keeping it moist and helping to prevent sloughing off.

I believe that a great deal of the sloughing off the first thing in the morning is caused by the shuttle

(*) Other discussions on this same subject appeared on page 125 of the February, page 113 of the March, and page 97 of the June, 1936, issues.—THE EDITOR.

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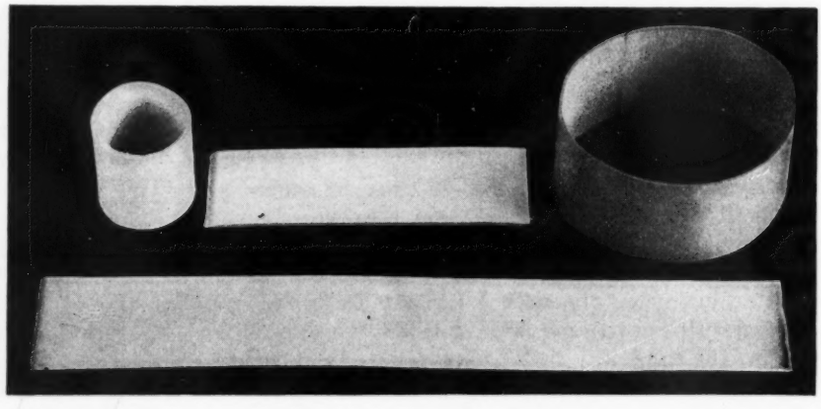

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bouncing. If the night help will take time to stop the looms with the shuttles in the boxes instead of just knocking the shifter handles off and hurrying home, the check straps will be in a position to help box the shuttle when the day weaver comes on the job. If that strap is not pulled forward by the force of the picker stick then the weaver starting the looms should do it. And it is not often that the weaver has time or will take time to do so. By the way, pulling those straps into position will save broken parts when the loom bangs off, break-outs caused from the shuttle not boxing properly, and shorts when a bad place is made or has to be pulled over and cut out.

Thus, I think that if "CONTRIBUTOR NO. 6436" will keep a temperature as described here, get down in time to start his humidifiers before starting his looms, and condition his filling, that most of his troubles on Monday morning start-ups will be eliminated.

CONTRIBUTOR NO. 6448

Causes of Shuttles Being Cut

Here are some interesting causes for the shuttle being cut on the bottom. This is a defect that may be eliminated—what do you do to stop it? . . .

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6477," who states on page 115 of April COTTON that he is having trouble with shuttles being cut on the bottom outside edges of the forward end between the point and the slot, as the shuttle goes into the magazine end, I should like to offer the following:

In the last few years, in order to operate looms at higher speeds, some mills and loom manufacturers have widened the opening in the lay-end bottom under the battery in order to prevent any obstruction interfering with the empty bobbin as it is ejected from the shuttle on the transfer. They have gone so far in widening his slot that the end of the shuttle, when entering the battery end, has a tendency to try to go down in the slot in the lay-end plate.

To remedy this, the front board (box front) and back binder must be set so that the shuttle enters the box squarely and is supported on both sides of the slot in the end-lay plate or bottom.

If "CONTRIBUTOR NO. 6477" does not have the lay-end bottoms with this wider opening, the only thing that I know that would cause the shuttle to be cut at the place mentioned would be that the steel rings on the bobbins have struck the edges of the opening in the lay-end bottom and have burred it. This may be corrected by filing them off and smoothing the places with emery cloth.

I take for granted, of course, that the loom is properly lined and leveled.

CONTRIBUTOR NO. 6478

EDITOR COTTON:

Answering "CONTRIBUTOR NO. 6477" as to his trouble of shuttles being cut as they go into the magazine end of the loom:

When the harness cams are not set properly the shuttle will be cut on the bottom. If the harness cams are set too early the shed starts closing before the shuttle has passed all the way through it, causing the back of the shuttle to be raised and the front of the shuttle to be held at an angle as it goes into the box.

I find that I have less cutting on the shuttle if the harness cams are set so that the reed is between 2 and 2½ inches from the fell of the cloth with the shuttle in the magazine end. The crank shaft will be just a little past bottom center when the harness are level. This setting will vary with the construction of the cloth being woven.

The harness should always be set properly.

Any rough places on the end lay plate will cut the shuttle, especially on the edges of the slot. These places may be cut down with emery cloth.

The pickers should be parallel also. If they are either too high or too low the shuttle will be cut on the bottom.

CONTRIBUTOR NO. 6480

EDITOR COTTON:

On page 115 of the April issue, "CONTRIBUTOR NO. 6477" wants to know the causes of the shuttle being worn or cut in the magazine end of the loom and how this may be prevented.

The slot in the lay end on the left-hand end of the loom is only large enough for the picker stick to work freely. The slot in the magazine end has to be big enough for the bobbin to pass through after a transfer. It is the shape of this lay end that causes the shuttle to wear on the bottom.

The shuttle box on the right side of the loom is about three inches shorter than the one on the left. It takes as much power to throw the shuttle to the right side as it does to throw it to the left, yet there is about three inches less checking space on the right end. This will make the shuttle wear more on the right end.

The shuttle will wear as it is leaving the right side because of a picker that is worn or too low. Thus, it will be seen that the shuttle wears entering and leaving the shuttle box. It is hard to prevent the shuttle from wearing but it may be helped by having both pickers parallel and not too low. When a picker is low, it holds the shuttle down against the lay end. By putting the shuttle in the magazine end, holding it and placing the foot on the parallel shoe, the picker stick may be seen pulling the picker still lower. This is due to the springy picker stick.

The binders should be set to give the best check. This may be accomplished by setting the binder to grip the shuttle about the middle; the shuttle should press the binder out until that part of the shuttle that first came in contact with the binder has reached the other end of the projection on the binder.

There should be as little power on the pick as possible.

The temples should be set so they will not hold the warp too high off the race plate.

Loom fixers should take time to put in new shuttles and line their looms properly.

CONTRIBUTOR NO. 6504

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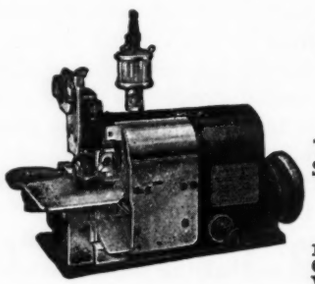

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Paralleling Pickers

An important item in fixing looms. We have heard of fixers that inspect their pickers every time they go to a loom . . . . . .

EDITOR COTTON:

One of the most important items in fixing looms is often done in an incorrect or slipshod manner. This is the paralleling of pickers. To insure an even throw of the shuttle, the pickers must be parallel. When a loom is run with unparalleled pickers it causes a harsher pick, takes more power, puts more strain on all parts, makes more broken ends and broken shuttles—in general it causes a run-down job on a fixer's section. A picker may be replaced correctly just as easily as incorrectly and in the long run, there will be less work involved on the part of the loom fixer if he performs the job right the first time. I agree that a loom will run sometimes even if the pickers are not parallel but the company is losing money by its doing so. In fact, I have even seen a loom run without a pick ball but no one would have thought of permitting that loom to continue to operate just because the pick ball's lying on the floor did not make the loom slam.

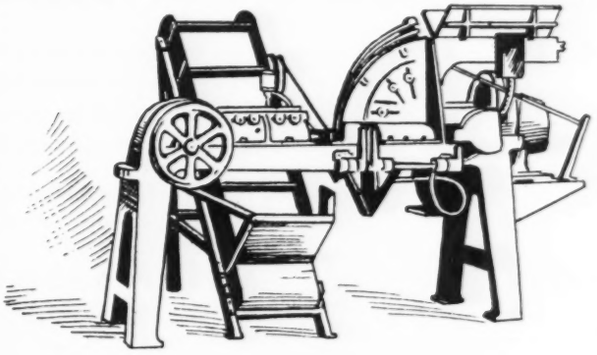
The Parallel Blocks

The parallel blocks are important in getting and keeping the pickers parallel and they should be checked when old pickers are replaced. The blocks are easy to install and they cost much less than pickers. If the old parallel block is worn and is left in the foot, it will be difficult to adjust the new picker. In addition to inspecting the blocks at the time of replacement, the blocks should be inspected periodically and new ones inserted when they are worn badly.

A worn picker foot or shoe will also prevent the picker's being paralleled. To test and ascertain if the foot or shoe is worn enough to replace, the shuttle should be pushed to the end of the box and slowly pulled forward with the picker following the shuttle; if the picker is parallel from the back to the front, the foot and shoe are in good enough condition to continue running; if the picker is out of parallel 1¼ inch or 1½ from the back or front of the throw, then the foot or shoe is worn enough to be replaced. It is often hard to secure a perfectly paralleled picker when the foot and shoe are cast instead of milled because the picker will usually be a little high in the center of the throw.

The bumpers should be in good condition because if they are worn too much, the picker stick will come too far forward so that the parallel shoe cannot take care of the radius of the picker stick, and the picker will be too low in front.

One thing that should be impressed on all loom fixers, from the time they are learning until they stop fixing, is that the picker should be set to the shuttle and not the shuttle to the picker. The shuttle should be boxed, centered properly and then the picker set to it. If the shuttle is set to the picker,



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CONTINUED ON PAGE 102

the shuttle is likely to be off center and the pickers will certainly wear faster than they can be replaced. Occasionally a picker stick will be crooked and the fixer should check this before he installs it because it is almost impossible to parallel a picker when the stick is not straight.

The Picker is Driven from the Back

When driving the picker on the stick, it is best to strike the back of the picker instead of the front because when the picker is driven from the front, the leather is forced down and later it will assume its normal position which will be too high for the point of the shuttle. A picker driven from the back and paralleled correctly at the time will remain parallel until it wears.

To prevent the picker or picker stick from being battered when driving the picker on the stick, it is well to employ a "34" wrench which will fit the stick over the back of the picker and form a flat surface for the driving.

Then the age-old question of whether it is better to use one picker screw or two arises, that is, one in the side and one in the back. This depends, I think, on the type picker used. At the present, we are using a picker that is easily held in place with one screw.

Good results may be achieved by the proper paralleling of pickers. In the long run it will mean less work for the fixer, a better running job, a lower supply bill, more production and less seconds.

CONTRIBUTOR NO. 6536

An Old-Timer Says—

(Continued from page 85)

drawing a handsome salary and promptly forgetting the man who gave him his start—well, just draw your own conclusions and I suspect those conclusions will be somewhat stronger than merely saying that he lacks dog sense.

However, such lack of appreciation must not discourage us old-timers. We must carry on, knowing that we are doing the things we should do regardless of whether we ever have the pleasure of knowing our efforts are appreciated.

There was some consolation in seeing what JIM and I saw—a dog leading a blind man—and the loving kindness which was shown by every act of the dog toward the man and by every act of the man toward the dog. Both JIM and I decided it was a beautiful sight:

"Dog Sense".

Did you ever have a loom you couldn't fix and when you called one of the other boys over to look at it, it just ran beautifully? Did you ever see a man that just worked when someone was watching him? Well, that loom gave you more trouble and so did . . .

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Continued from Page 100

131. Houghton's Leathers for the Textile Industry—This valuable handbook contains 88 pages of data on the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

132. Houghton on Sizing Products—Thirty-two pages of valuable information on sizing of cotton warps and yarns. Gives detailed information on how to conduct sizing tests and contains tables for recording results. It describes the requirements of different types of yarns and gives actual formulas for producing desired finish. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. STA-PUT Lubricants—A brief description of an entirely new type of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141—V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts and belt and sheave list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

147. Let's "CAN" The Oil Can—describing permanently sealed bearings for life, and for higher speeds and temperatures single seal ball bearings which have to be lubricated only from one to three years. New Departure Mfg. Co., Bristol, Conn.

150. Engineering Data Book on Mechanical Rubber Goods—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152—Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154—Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drives. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association. 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

166. Better Cones The World Over—Bulletin describing the Universal No. 50 Winder for silk and rayon. Universal Winding Company, 95 South Street, Boston, Massachusetts.

168—The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

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170. Gates Textile Accessories—Showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

184. Speed Control Handbook T-35—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind

185. Duiux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

191. The Bahnson Humiduct—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

193. Short Cuts to Power Transmission—72 page illustrated booklet containing all information needed in solving any ordinary belt transmission problem, informative material on belt joints and transmission practice and a quantity of useful tables and data. Flexible Steel Lacing Co., 4607 Lexington St., Chicago, Ill.

194. Accurately Checking Spindle Speed—A three page booklet describing the Strobotac, a tachometer operating on an entirely new principle for observing and measuring spindle speeds anywhere between 600 and 14,000 rpm. General Radio Co., 30 State St., Cambridge, Mass.

195. Never Buy Sponges in the Rain—Booklet outlining the importance of knowing the percentage of moisture in a given textile in the buying and selling of the same and in connection with the working of textile fibres in the process of manufacturing the goods, also showing different types of conditioning ovens for determining moisture content. Emerson Apparatus Co., 174 Tremont St., Melrose, Mass.

196. Economy of Diesel Engine Power—Bulletin No. 3030, 44 pages, illustrated, giving advantages of diesel power in industrial plants. Fairbanks, Morse & Co., Chicago, Ill.

197. Extra Life for Chain Link Fence—A folder telling about Bethanized Wire and explaining its advantages for mill and factory protection. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

198. The Perfect Loom Let-Off—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

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KNITTING SECTION

A Practical Method of Timing the Elements of a Hosiery Dyebath

By J. A. Crumley

OF late there has been interest shown by dyers on the methods of timing dyebaths. This is an important item to men in the hosiery field because first-class goods may reach this point only to be ruined because of no up-to-date method of timing the baths. A question on this subject appeared on page 143 of the May issue and we are glad to be able to run this answer. It gives one method of eliminating "clock watching" and shows how one dyer relieved his men of the strain of sedulous clock-watching.

THERE are many factors that enter into the proper operation of an up-to-date dyehouse. In these days of close color matching and perfect finishing, it is necessary that every item be as closely standardized as possible.

Those "3 M's" Again

Most industry is summed up in terms of the three M's such as material, machinery and men. There is a fourth and all important M, one too often neglected, and that is minutes.

It is my purpose to show how we deal with those minutes at our plant and how they set the pace of our day's work. Much has been done in the way of improving machinery, such as machines with better circulation, automatic steam controls and variable speed control as needed to fit each particular job, but in the two factors—men and minutes,—we have variables that are perhaps the hardest to control. The human factor is and will always be a matter of concern except when replaced with automatic processes and in the dyehouse that period has not yet been reached in entirety.

The time element in most dye plants is measured by man and that to suit his own convenience from one job to another. It is common practice in most dyehouses to have a dummy clock or an old worn-out alarm clock on each machine. As each dyeing or finishing operation progresses the dyer sets this clock ahead of a wall clock or his own watch the number of minutes necessary for that particular operation. When the two clocks coincide the next operation is performed provided that the dyer has been carefully watching the clock.

Often he gets too busy doing something else and runs over a goodly number of minutes before he attends to that duty. Then we do not get uniform results and often wonder why—unless we were present at the time it happened. It is not entirely the fault of the dyer that uniform results are not secured. "It is human to err" and often men are given too many machines to run and, of course, they cannot do justice to the job.

The majority of dyehouse workers want to do their work right and the more that we can help them the better they will do it. I have never favored a job that gave men too much to do and where they could never raise their heads above the job and think. We have all heard the expression "clock watchers" and that is a part of the usual dyehouse job. If clock watching could be avoided then time for other duties or better attention to the one in hand would automatically follow.

Some dye plants use the time clock and time card system of checking lots through the machines. That is, the dyer has a time card for each dye-run and he travels back and forth every time he performs a duty and punches the time card. This involves a great deal of running back and forth across the room and does not solve the problem to my notion.

Timing Device Installed

To avoid the above condition and to give my men more time to do their work properly, I perfected a timing device and indicator control. This timer has been in use in our plant for over a year and my men are sold on the idea. They do not have to watch the clock.

In addition to telling each operator when he must do a certain operation, the indicator on the board tells him exactly what to do and points to the next step. We can take a learner and with the various operations set before him, he can follow through learning the job in half the usual time.

It is easy for even an experienced dyer to get puzzled, when operating more than one machine, and put on materials in the wrong order. He may put on salt twice because he forgot the first salting or when it comes salting time he may pull a sample instead.

We are using four different finishes and they must be put on in a certain order. Two are the precipitating type and to leave off one would be to

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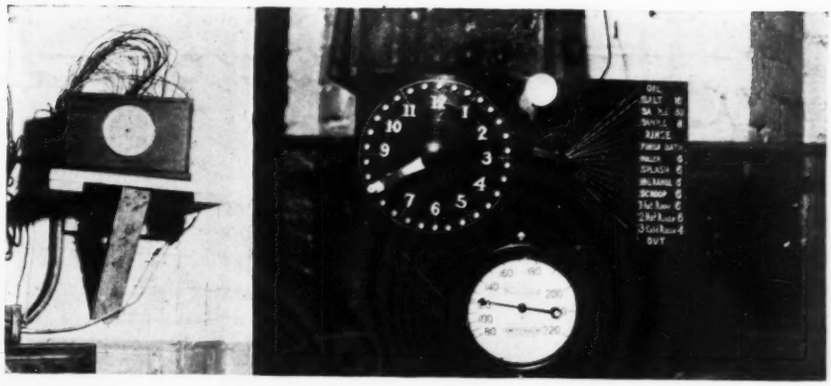
400 N. Franklin Street, Chicago, Ill.



The complete timing device is shown here. The master clock (left) operates the lighting system on all the dummy clocks (right), one of which is on every dye machine . . . .

lose the benefit of the other. We are not permitted mistakes in the dyehouse because the majority of them cannot be corrected. Therefore, we must be careful.

The Device Explained

Figures 1 and 2 show this timing device and indicator control installed on dyeing machines. It consists of a bakelite board on which is mounted an electrical dummy clock with intervals of two minutes. This is directly connected to a master clock which lights up the 32-candlepower light at the time set by the operator on the dummy clock. The master clock controls all the different machines and it does not matter how many machines are attached to it.

At the right of the dummy clock will be noticed a moveable indicator which points at the different operations that are listed in consecutive order. This list helps the operator to remember the next move. Here is the list:

Oil	
Salt	16
Sample	30
Sample	8
Rinse	
Finish Bath	
Duller	6
Splash Proof	6
Ingranol	6
Scroop Oil	6
1st Hot Rinse	6
2nd Hot Rinse	6
Cold Rinse	4
Out	

A typical dye-run would be put through as follows: The dye machine is heated to a boil and the oil is added as shown at the head of the list. The goods are added and the dye follows immediately and upon closing the lid of the machine, the indicator is set to point at "Salt". The hand on the dummy clock on the machine is moved around until the light flashes that gives the exact time. We can look at the master clock if we wish and get the exact time or else move the dummy hand until we get the light. Then we count off eight points ahead on the dummy clock, which is sixteen minutes, and we leave the hand there. In exactly sixteen minutes the light on this particular machine will flash and when the operator goes to it he will see the indicator pointing to salt. After salting he moves the hand fifteen points or thirty minutes ahead and at that time the light will come on again. He has set the indicator pointing to "sample", which he does at that time. After the first sample, we sample every eight minutes for color adds as needed. When the color is passed, the rinse and finish bath follow. The different finishes follow each other at regular intervals and the indicator is used to help keep them separate and to accurately time each finish.

The light remains on for two minutes so that the operator will see it if he happens to have his back turned at the moment it flashes. Alarm bells may be used in conjunction with the lights if they are needed.

From my laboratory I can watch the play of the lights on the machines and ascertain the progress of every run. We have found that the lights ease the operator of continual watching of the clock and there is less strain on him.

The electrical system uses a 110-volt current reduced to 6 volts so there is no danger of receiving a shock from the wet machines or floors. The indicator could be operated automatically also, but there is the possibility of getting things too complicated.

We do not claim that this system is a panacea for all dyehouse ills but in the accurate timing and keeping of operations in correct order, we could ask for nothing better.

Meet of Rayon Technical Conference Probable

The 25th year of American rayon production will probably be celebrated by a National Rayon Technical Conference this November. The Textile Division of the American Society of Mechanical Engineers has extended an invitation to the American Association of Textile Chemists and Colorists, Committee D-13 (the Textile Committee) of the American Society of Testing Materials, and the U. S. Institute of Textile Research to join with the division in being co-sponsors of a National Rayon Technical Conference to be held in Baltimore in November of this year. C. H. Ramsey, chairman of the A. S. M. E. textile division, extended the invitation to other societies and asked them to send representatives to a program committee meeting that was held in New York City, June 15. The suggestion that Baltimore be the city was for two fold, first, because rayon started production there 25 years ago, and second, because it is centrally located between the Northern and Southern sections of the industry.

The Importance of a Job Ticket

By M. M. Abrams

WHEN AN ORDER is being sent through a hosiery finishing department where some or all of the operators are piece workers, some type of record of the individual piece work production must be kept for payroll records. One has the choice of either making individual work tickets for each operator or keeping lengthy log sheets. There are well founded objections to each of these methods. Let us discuss them individually.

Suppose we have a dye lot in process consisting of five sizes—8½, 9, 9½, 10 and 10½. We require a surprising quantity of work tickets for all the operators. We need

5 tickets for sorters, 5 tickets for boarders, 5 tickets for pairers, 5 tickets for stampers, 5 tickets for folders, 5 tickets for boxers; 30 tickets total.

Fig. 1 illustrates a work ticket. This count is without taking into consideration tickets required for reboards, menders, latchers, box stamping, etc. The writer does not advocate this method of handling piece work payroll records.

Log sheets (Fig. 2) are another method of handling piece work payroll records. Each operator keeps a log sheet (in duplicate) on which is entered the date, the lot number and the quantity of dozens processed lot by lot. At the end of the day the foreman or forelady signs the slip for an O.K. The original is sent into the payroll office and the duplicate is kept as the operator's receipt. If this method is used, identifying tickets or slips are still required to accompany the various dye lots through the finishing department. The log sheet is objectionable because the operator can cheat and "slip in" some extra dozens on the sheet or "pad" the count. This cannot be done so easily with work tickets because as each lot is turned in it can be checked immediately and the ticket punched or marked for the dozens turned in. A stub is likewise punched or marked and given to the operator as a receipt. A second stub is sent to the payroll department and the balance of the ticket is kept for departmental reference.

A job ticket (Fig. 3) simplifies this work and also eliminates the laxity of log sheet records. A job ticket is made out for each size. Where before we required 30 tickets, we now need only five. All instructions for each operation are listed on the job ticket. The left-hand side is the permanent record. Quantities and operators' names or identification numbers are marked in and the dozens processed are also entered as the lot passes on its way through the finishing department. The right-hand side contains two perforated stubs for each operation. One stub goes to the payroll department after the quantity processed has been checked and entered and the other stub goes to the operator as a receipt. This job ticket simplifies work in the finishing department. It has the added advantage of giving the complete story of the dye lot size from the sorter through the boxer. The results of each operation are shown, and any discrepancies can be easily checked instead of having to pore over volumes of work tickets or search through columns of log sheets.

BOARDER'S RECORD

LOT N° DATE

STYLE SIZE

COLOR AMT.

BOARDER

1	2	3	4	5	6	7	8	9
10	20	30	40	1-24	2-24	3-24	4-24	5-24
6-24	7-24	8-24	9-24	10-24	11-24	12-24	13-24	14-24
15-24	16-24	17-24	18-24	19-24	20-24	21-24	22-24	23-24

15-24	16-24	17-24	18-24	19-24	20-24	21-24	22-24	23-24
6-24	7-24	8-24	9-24	10-24	11-24	12-24	13-24	14-24
10	20	30	40	1-24	2-24	3-24	4-24	5-24
1	2	3	4	5	6	7	8	9

BOARDER LOT N°

PAYROLL STUB

RECEIPT

BOARDER LOT N°

1	2	3	4	5	6	7	8	9
10	20	30	40	1-24	2-24	3-24	4-24	5-24
6-24	7-24	8-24	9-24	10-24	11-24	12-24	13-24	14-24
15-24	16-24	17-24	18-24	19-24	20-24	21-24	22-24	23-24

FIG. 1

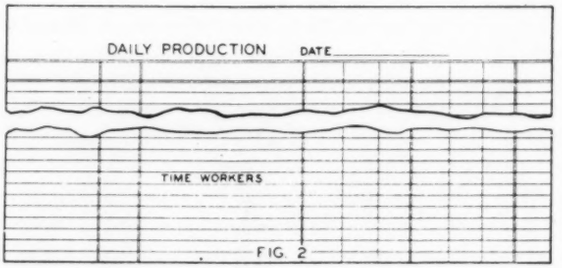


FIG. 2

LOT Nº DATE

STYLE SIZE

COLOR AMOUNT

SORTER

BOARDER

	PERFECT PAIRED		THROW OUTS		THIRDS		TOTAL	
PAIRED								
MENDED								
LATCH								
REBOARDED								
DYE SPOTS								
ODDS								
TOTAL								

PAIRER

INSPECTION

STAMPER

AMOUNT

INSTRUCTIONS

FOLDER

AMOUNT

INSTRUCTIONS

BOXER

AMOUNT

INSTRUCTIONS

SORTER

AMOUNT

PAYROLL

AMOUNT

SORTER'S RECEIPT

BOARDER

BOARDER

AMOUNT

STYLE

PAYROLL

AMOUNT

STYLE BOARDER'S RECEIPT

PAIRER

AMOUNT

PAYROLL

AMOUNT

PAIRER'S RECEIPT

STAMPER

AMOUNT

PAYROLL

AMOUNT

STAMPER'S RECEIPT

FOLDER

AMOUNT

PAYROLL

AMOUNT

FOLDER'S RECEIPT

BOXER

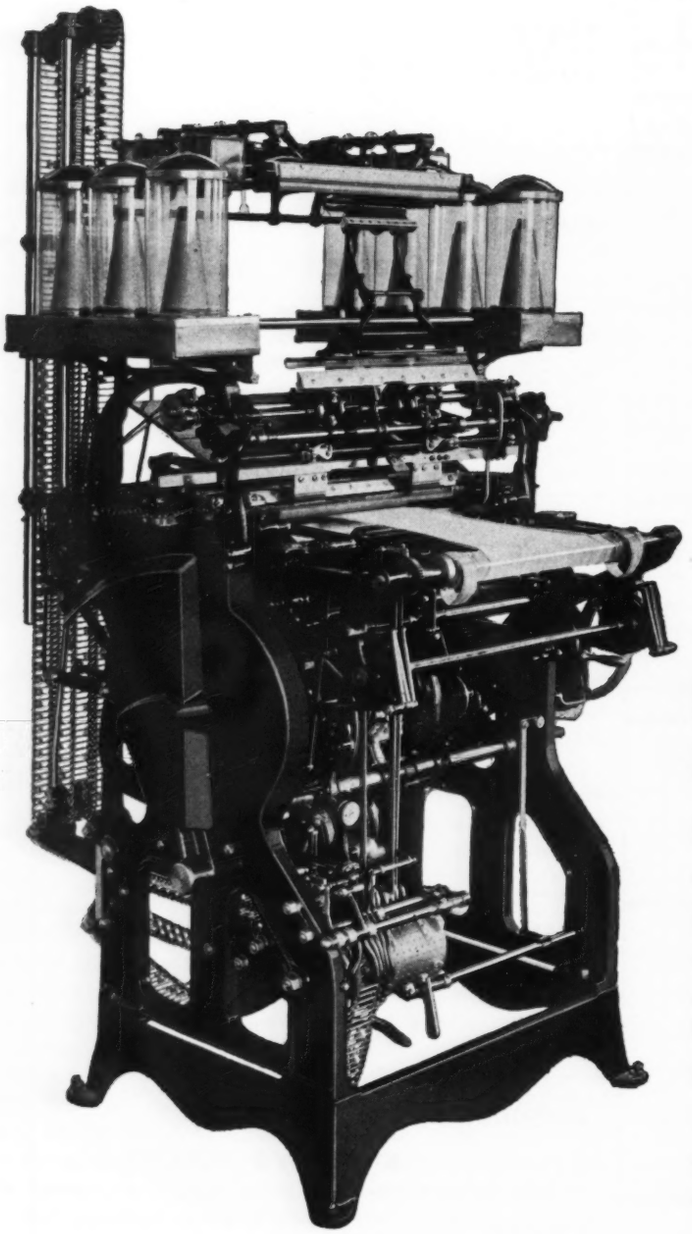
AMOUNT

PAYROLL

AMOUNT

BOXER'S RECEIPT

FIG. 3



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WILDMAN SINGLE HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE

Eliminating Old Machinery from Competition

EDITOR COTTON:

Some time ago an article appeared in your columns discussing the problem of "what to do with old machinery" (page 113, June, 1935, COTTON)—and this problem is still haunting many hosiery manufacturers today. If you will allow me a little space in your columns, I would like to give a few of my ideas on this problem, which is being discussed about as much as the weather with just about as much being done about it.

One great trouble with the seamless hosiery industry today is that a man can take a few hundred dollars and buy up a lot of cheap machines and install them in the basement of his home, and he and his family can operate them and put a lot of cheap hosiery on the market, and because of his lower prices, the mill from whom he bought his machines will soon have to lower its prices and soon will lose more money than it received for the old machines.

I know of a southern manufacturer who has a number of old style machines that can be bought for $10.00 each (name will *not* be furnished on request, if you are interested in buying them), and these machines are in first-class condition for making men's cheap cotton half-hose, and will produce 10 dozen in two 8-hour shifts. What chance would a regular manufacturer have to compete with the man who bought these machines and operated them in his basement, using his family for operators?

I recently visited a friend of mine in North Carolina who, I had heard, was in the hosiery manufacturing business, and upon reaching his home city I made inquiry as to the whereabouts of his mill and was directed to a certain street and advised that his mill was about one-half mile out this street. We drove out this street until we had gone more than a mile and did not see anything that looked like a hosiery mill, so we turned around and headed back toward town. Finally, we came upon a small rough looking building in the back yard of an average looking home, and the friend who was riding with me saw a cone of yarn in the window and jokingly said that this might be the mill. Being somewhat familiar with the present day types of mills, we decided to investigate and found that my old friend was operating a line of machines in this building.

The building could not have cost more than $150.00, and my friend had bought the machines from a former employer for a song, with nothing down and about one verse per month. We found that he was selling his goods in the gray to some firm in New York and getting cash for them every week. He could get three or four turnovers before he had to pay for his yarn and materials, and he was working two or three members of his own family and was his own general manager, superintendent, foreman, fixer and what-have-you. How could any hosiery manufacturer who is trying to pay wages, taxes and rent and a thousand and one other things hope to compete with my friend in North Carolina? But I am not blaming him; he is making a good living in his own back yard. The man who sold him the cheap machines is to blame. This is just one instance of this kind and there must be many similar cases all over the country.

There are so many things that have beset the hosiery industry during the past twelve or fifteen years that it makes one dizzy to sit down and think over them. In 1920 and prior to that time we had enough seamless machines in this country to supply all of our people with seamless hose with plenty to share with our friends in foreign lands. We exported hundreds of thousands of dozens annually. Then full-fashioned came into prominence in this country and about the same time some of our foreign friends began making seamless hosiery on a large scale and today our export business is but a skeleton of its former self. To add fuel to the flame, Japan is unloading hundreds of thousands of dozens on us annually, at unheard-of low prices. But this is not all.

In the good old days all women and children wore full length stockings and the women wore them all the time. Our present day bare-legged women have caused more worry for the manufacturer and knee-length stockings and anklets are just about the proverbial straw that is breaking the camel's back. Thirty per cent more ladies' knee-length stockings and 50 per cent more anklets can be made on the same machines than could be made of full length stockings. And new seamless machines are being made and sold while most of the machines of the 1900 vintage, and possibly of the gay nineties, are still in operation.

There was a time when a manufacturer could set aside a certain amount for an obsolescence fund and could afford to junk his obsolete machine when he

Finer qualities, greater speeds, more firsts, fewer seconds, a clearer, sheerer fabric—these are the factors influencing a hosiery manufacturer's choice of needles. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality silk stockings are standardized on Royersford Needles is a tribute to satisfactory results.

The prescription for better knitting

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was ready to install new equipment, but in recent years he has had to use this fund to carry on with his old equipment and consequently he has nothing with which to buy new machinery, and if he should be fortunate enough to have some of this money left he does not feel able to junk his machines so, if he has some old ones that he is not running, he advertises them for sale and soon someone buys them and another competitor is in business. This practice not only hurts the hosiery manufacturer but it is ruining the machine builder. The $10.00 machines I referred to will make as many plain socks as any new $1,000 machine on the market.

There are entirely too many machines in operation in this country for anyone to make any profit. The old theory of the survival of the fittest has long since exploded. When some mill fails, it is sold for a very small percentage of what it is worth and here comes keener competition from the new company with practically no investment, so that doesn't help.

An effort was made to help the situation by limiting hours of production, but we soon were making as many goods in eight hours as we formerly made in ten hours, so this didn't help.

Some solution must be found to this problem of obsolete machines before we can hope to make a profit on our goods. At least one manufacturer of high grade looping machines is doing his bit by allowing $25.00 for any old looping machines regardless of condition, and, to my personal knowledge, he has traded in a lot of machines and junked them.

If the knitting machine manufacturers would adopt a similar policy it would help some, but it will take even more drastic measures than this to give us any real relief.

My idea of a real solution to this problem is for at least 85 per cent of the hosiery manufacturers to get together on a tax plan, and, for lack of a better name, we will call it "Obsolescence Tax," and assess each one three or four per cent of their gross sales to be used to buy up all the old cheap machines and send them to the melting pot. This tax could be paid either in cash or in old machines at their assessed value, these machines to be junked.

If 85 per cent of the hosiery manufacturers would go in on a proposition of this kind, the price of hosiery would quite naturally advance more than enough to pay this tax and as soon as machines were bought and junked, prices would go higher and as soon as surplus and distress goods were removed from the market, we would see much improved conditions in the hosiery business.

With this plan in effect, enough machines could be bought and junked in one or two years to change the hosiery business from one of losses and headaches to one of pleasure and profit and no one would ever realize who paid the bill. If we can find enough manufacturers who will co-operate with this plan to make it effective, we would have no trouble in removing enough old machines to balance supply and demand and when this is accomplished, then and only then can we expect to make a reasonable profit on our goods.

CONTRIBUTOR No. 6553

Causes of Zinc Soap Spots and How to Remove Them

EDITOR COTTON:

On page 137 of the May issue of COTTON, "CONTRIBUTOR No. 6499" wants to know what causes zinc soap spots on hosiery and how to remove them when stripping with one of the sulphoxalate agents and washing out with soap.

We had this trouble once at our plant and it is my opinion that the zinc soap sediment, which formed in spots on the stocking, is caused by a reaction between the sulphoxalate, which is acid, and the soap, which is caustic. The amount of soap was not enough to carry or neutralize and keep in solution the sulphoxalate stripping agent; this resulted in a breaking down of the soap and the formation of zinc oleate.

If the goods had been freer of sulphoxalate, by more rinsing, this condition would have been prevented.

To remove the spots we used a cold bath with one per cent metaphosphate, two per cent ammonia, raised the temperature to 150 degrees and added enough soap to form suds. (About two or three per cent). We ran this for about fifteen minutes and when we took it off the spots were gone.

We use the sulphoxalate stripping agent because some of the styles that are made with acetate picot must have the picot remain white. When a hydrosulphate stripping agent is used there are certain silk colors used to reserve the acetate but which will stain the acetate a yellow. So, we use the sulphoxalate because it will reduce the silk color entirely.

CONTRIBUTOR No. 6505

EDITOR COTTON:

The question regarding the removal of sulphoxalate spots is a nice one and is an old customer causing sorrow among dyers. I do not have information as to the bath and water conditions at the mill of "CONTRIBUTOR No. 6499" but I will give some of the possible causes of these spots and then give a method of removing them once they are formed.

Sodium sulphoxalate, $NaHSO_2CH_2O_2H_2O$.

Zinc sulphoxalate, $Zn(HSO_2CH_2O)2$.

The sulphoxalates are usually one or both of these compounds in mixtures to suit the specific stripping job. As a rule they are recommended to be used with acids in the stripping of dyed silk or animal fibers.

In this case, I imagine that if the dyer used acids he failed to get a thorough rinse and this permitted acid zinc and sulphide compounds to remain on the silk when the soap was added; this formed insoluble zinc and sulphide soaps, which are difficult to remove.

I suggest that the dyer check his water supply and if he has hard water to correct it as this will provoke spotting. It is also well to have a hot wash immediately after the stripping bath. Then have a hot wash with one of the acid stable sulphonated

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fatty alcohols, and omit the soap in finishing a stripped lot with this method. Another good product to use here is di-sodium phosphate which can be used with fatty alcohols or even the better grade of soaps in hot rinsing.

To remove the zinc soap spots once they are formed, I suggest spotting with dry cleaner's soaps or rubbing lightly with solvents. Then place the hose in bagging and scour in a hot bath with 2 per cent fatty alcohols or some similar agents. Two scouring baths may be beneficial and they will leave the silk in good feeling condition.

CONTRIBUTOR NO. 6506

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6499" who is having trouble with zinc soap spots forming when stripping full-fashioned hosiery with one of the sulphoxalate strippers, I would say that these spots are usually caused by the action of the zinc on the soap breaking it down into zinc soap spots. These may be caused by the action of the acid base of most zinc sulphoxalate strippers, or the acid added to them on the soap. If the acid causes the soap to break down and a zinc stripper is in the bath, zinc soap spots form.

These spots may sometimes be removed by giving the goods a light acid wash to loosen the zinc and then soaping to remove the spots. Some of the fatty alcohols will help remove these spots when put in the rinse while it is at 160 degrees F. Then too, if an acid rinse is given, a fatty alcohol rinse will be better than a soap rinse because the breaking down may be caused by the action of the acid on the soap and more soap will cause continued breaking down.

The spots may be prevented by using either a good grade of sulphonated castor oil or one of the fatty alcohols in the stripping bath. The addition of a little calgon to the bath may help prevent precipitation. If soap has to be used, it should be tested thoroughly in every respect.

CONTRIBUTOR NO. 6507

What Causes Broken Stitches on Merrow Machines?

EDITOR COTTON:

We are having trouble on our Merrow sewing machines when stemming. As we sew in the clocks on half-hose we notice that a stitch in the hose is broken just as happens when the needle is dull or blunt, but in our case the needles are all right. When we change to another cone of yarn the trouble often disappears for awhile. We have noticed this breaking of stitches especially on yarn that is dark or even black. It may be that the darker dyes tend to leave a surplus of the dye on the yarn which may be the cause of our trouble. At any rate, when we change to a light color the broken stitches stop. I would like to know what other men do to correct this.

CONTRIBUTOR NO. 6489

Reducing "Spoiled" Legs Made by Toppers and Footers on Full-Fashioned

EDITOR COTTON:

On page 143 of May COTTON I see that "CONTRIBUTOR NO. 6493" is interested in securing information on the percentage of spoiled legs made by toppers and footers on full-fashioned, as he feels that the number of spoiled legs from his operators is entirely too high.

For his information, I might say that our experience has been that if the number of spoiled legs is less than one half of one per cent of the total of dozen legs given to the footer and toppers, then that is as good a percentage as one should expect. If the spoilage is greater than that, then an investigation should be made and a remedy found to stop this spoiling.

I note that he says that a large number of the legs spoiled come from breaking out in the topping corner of the heel. He states that he is making a block of four needles at this point and wonders if this is the cause. A four-needle block is not the cause for breaking out in the corners, but the real cause is usually that the toppers do not crease the line far enough into the block and as a result the stitch is too tight at that point for the transfer operation; in transferring, the corner will break out.

Another cause for breaking out in the corner is that the rocker setting is not correct and the rocker does not enter into the block to make the stitches looser. I am sure that if the contributor will investigate the creasing done by the toppers and also check the rocker setting that spoiled legs caused by breaking out in the corners will be considerably reduced.

In regard to having spoiled legs on 3-carrier machines due to pressing off on the first course. I feel sure this is due to the footer being too hasty in starting up and not watching to see if all the threads are set properly and entering into the sinkers and needles.

In the 3-carrier operation there are now three threads to watch where formerly there was only one, and therefore a knitter should be careful to see that all threads are set properly before starting the first course, otherwise a press-off occurs which results in a spoiled leg.

We also had many spoiled legs when we first started making 3-carrier styles and in order to be able to re-top stockings that pressed off on the first course, we increased the number of courses from the last step in the heel to the topping point in the heel. We formerly had 12 courses at this point but increased this to 18 courses. This means that when a stocking is off on the first course, it probably can be re-topped by the topper.

My experience has been that most spoiled legs are due to carelessness or haste or lack of co-operation between the footer and toppers, and when an excessive amount of spoilage occurs, action should be taken to have it stopped.

C. H. BAXTER

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Ordering and Keeping Supplies in a Hosiery Mill

Have you ever lost production just because you didn't order a small part in time? . . . .

EDITOR COTTON:

This job of ordering and keeping supplies in a hosiery mill is not a difficult one, but it must be watched consistently or embarrassing and costly stoppages will result.

Say, for instance, that we only keep two or three of the smaller parts on hand. These may be parts that do not often break on a knitting machine but that wear gradually. Maybe the overseer plans to inspect these parts periodically and order a number of them at a time to save trouble. This inspecting periodically is a good idea but what if the settings have to be changed before this inspection comes up—the old pieces will not fit and the machine must stand. Who gets the blame for this? Not the fixer, he would be glad to do the work. The blame is going to fall on the overseer and then on the superintendent.

Well, when superintendents begin to be censured for something for which they are not responsible, they are going to start looking places for another overseer that will look after details.

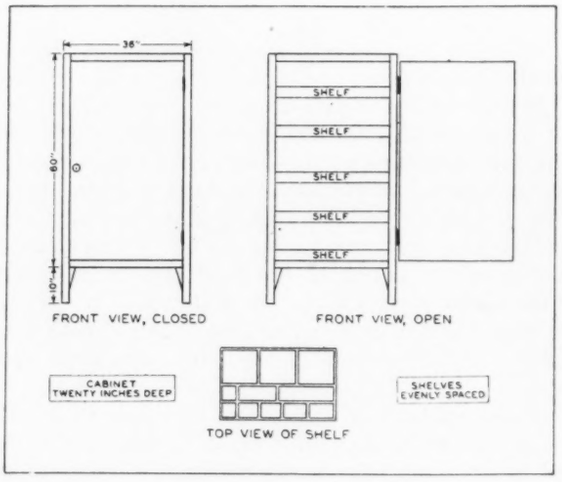
Such things as inside sinker rings and sinker caps may be kept in small numbers. These parts do not have to be changed often, but when it comes to cams, fingers, etc., well, it's just necessary to have a lot of them in the supply room.

It is useless to mention needles; no overseer is going to run out of them. In our plant we had a standing order to be delivered each month but now we are so close to the market that we are able to order in smaller quantities and get them quickly.

Don't misunderstand me, I am not in favor of carrying so many supplies that a vast amount of money belonging in more useful places is invested in parts. I am, however, in favor of reaching that happy medium in supplies where no money is lost when a bad breakdown happens.

We let our overseer make out a requisition *in duplicate* and he turns it over to the superintendent for approval. We have him use a copy so that he may check to see if what he actually ordered came through If not, then it is up to him to do something about it.

Our overseer has a steel cabinet in which he keeps his supplies and this is under lock and key. No one but the overseer issues supplies. When he issues needles to his section men, he keeps a record of it. In this way we see which jobs are running high in needle consumption. When we know just where our supplies are going we stand a much better chance to correct their excessive use than if we just know they are going "somewhere".



"Our overseer has a steel cabinet . . ."

Here is a sketch of our steel cabinet. By keeping the supplies in this manner the overseer may ascertain by quick inspection what he needs. There are many methods of keeping supplies so that the overseer is "flagged" when he should put in an order for parts—but this is a story within itself.

CONTRIBUTOR NO. 6514

Waste in the Mill

EDITOR COTTON:

I think the most discussed topic in the mill today is the question of preventing waste and seconds and how to keep the cost low. I believe there are some mills that actually don't know what percentage seconds they are making and what their cost is.

For instance, the inspector gets four dozen seconds from 100 dozen from the knitter. Figured on a percentage basis, this is four per cent. These four dozen are returned to the knitter who gives four more dozen to replace them. Then this is not four per cent any longer but is 3.85 per cent seconds.

The same applies to the dye-house when they have re-dyes.

I offer a method of keeping a record of the bad work and who makes it. Often the knitter has more than one fixer and I have him keep a record of which machines produce the seconds. In this way, we can check back and have the fixer work on those machines that are giving trouble. Tickets are made for each lot

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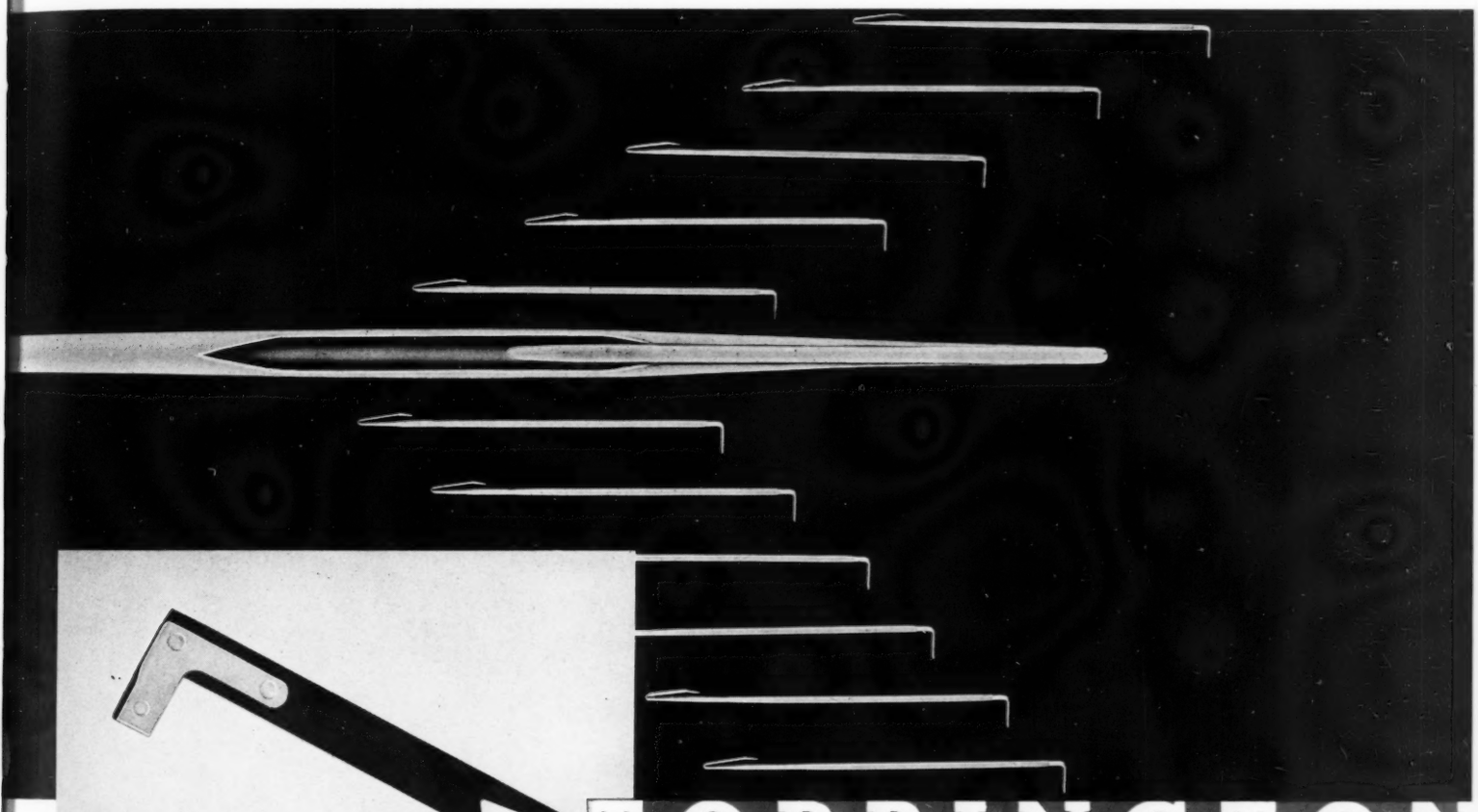

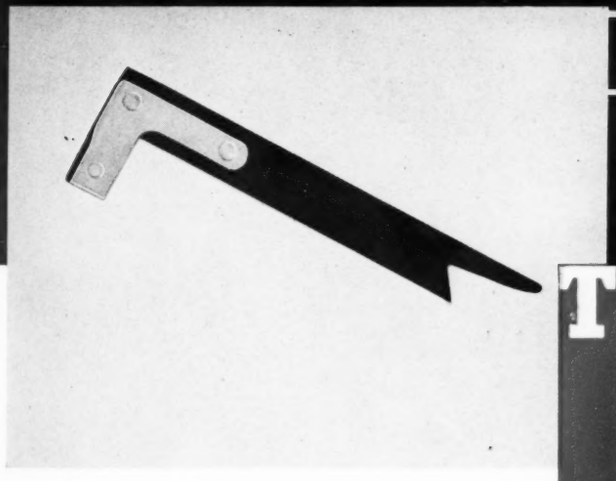

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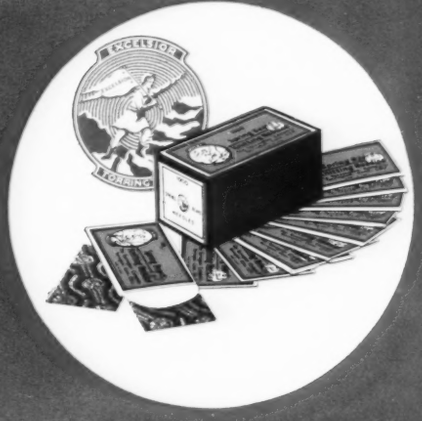

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that is weighed and when the goods are separated, we check the weight of the seconds against the total weight, as four pounds of seconds and 96 pounds of firsts, will give four per cent seconds.

Some mills do not allow the knitters to pick the seconds but have two inspections; if the knitters did this work, it would eliminate one inspection, leaving only the inspection after the hose are looped.

Neither do I think it a good idea to allow the fixers to weigh their own seconds as often they will turn in a report that is not correct. The day and night fixers should be watched to see that they do not run the supply bills high. It is our plan to let the day fixer replace all cams, etc., and have routine work for the night fixers also.

CONTRIBUTOR No. 6549

Prefers Porcelain Eyelets on Seamless Machines---and Gives Reasons

EDITOR COTTON:

We recently found it impossible to obtain a high quality of rayon yarn that had been popular with seamless hosiery, and substituted a different type of rayon that proved to be a source of great trouble for awhile until we located the trouble and corrected it.

We anticipated no trouble with the new yarn when we changed our machines over to it, but to our surprise the seconds mounted higher and higher, waste went up out of all reason, and we broke an unusual amount of needles.

Besides all of this extra cost we had a general slowing down of production which of course meant additional per unit cost. Every fixer and foreman in our knitting department worked patiently and eagerly to find the cause of this difficult and expensive situation with which we had suddenly found ourselves confronted. We tried everything, it seemed, that could have caused such trouble but for a while all of our efforts were in vain.

After many days, even weeks, of scientific effort and experimentation, we discovered that the pigment in the new yarn seemed to be acting as an abrasive as well as a pigment. We found that every steel eyelet was cut full of tiny grooves, nicks and notches so small that they were almost invisible to the naked eye. With this knowledge as to what was happening to the eyelet, we thought we had the situation well in hand. We started a general polishing crusade which we expected to eliminate the trouble.

We were very disappointed, however, with the results obtained by polishing all of the steel eyelets, as the effect seemed to be only temporary. The eyelets when polished as smooth as it seemed possible to polish them would be just as full of grooves in a few days as they were when we started. Of course we soon found out that we were not getting any permanent results from our efforts.

Someone suggested replacing all of the steel eyelets with porcelain, since the new yarn seemed to be cutting new grooves in the steel eyelets as fast as we could polish them out. We had a catalog of porcelain eyelets, which we found to be very inexpensive. We selected the various kinds and sizes of porcelain eyelets that we needed, even the take-up eyelets which we had to have made special as the company had no eyelets in stock suitable for the take-up. We placed an order to be shipped at the earliest possible moment. We received the shipment in due time and started another crusade, but not a polishing crusade this time. We started replacing all steel eyelets with porcelain. The results obtained from this change were marvelous. Seconds and waste went down to normal, in fact beyond our fondest expectations, and needle breakage dropped down quite a bit and production went up even higher than what we had formerly considered to be normal production.

You can thus understand why we consider porcelain eyelets to be an indispensable factor in manufacturing seamless hosiery. We would not attempt to do without them at several times what they actually cost. They prevent, on seamless hosiery, such troubles as rayon breaking out or jerking tiny holes in the legs of the stocking, or breaking out of the yarn which on first examination might appear to be a knot in the yarn but by further examination will be revealed to have been caused by several broken filaments that break in the grooves that have been cut in the eyelets and peel back over the yarn until so many of the filaments are broken that it forms a knot that will not go through the eyelet, the remainder of the filaments breaking and of course resulting in a piece of waste, sometimes a short piece and sometimes very nearly for the full length of the stocking, depending on how much of the stocking is made before a sufficient number of filaments are broken to cause the remaining filaments to break, causing what is known by hosiery workers as a press-off.

This press-off or piece of waste is a total loss except for the price of waste which is only three to five cents per pound. While this waste is very expensive it does not constitute the whole additional cost. Sometimes several filaments are broken and peel back over the remaining filaments until a great lump is formed, and by some inexplainable means it forces its way through the eyelet and goes under the needle hooks. In this case, of course, the needle hooks are overloaded and the result is broken hooks or hooks that have been forced open too much. In case the needles are broken they must be replaced with new needles. Far more expensive, however, is where the hooks are forced open and allowed to remain in that condition unnoticed. Such a needle if it happens to be on the short butt side, or heel and toe side, of the machine, will cut holes in the gore of the heel and toe and make many seconds before it is finally discovered and replaced. All of this is very expensive for the company and is a source of much trouble and worry for the fixer. It also takes up much of the fixer's time that should be utilized for other duties.

We are thoroughly convinced beyond any doubt that porcelain eyelets are far superior to steel eyelets.

CONTRIBUTOR No. 6471

Additional Timely News Items with a Textile Slant

Statistics Reveal that World Production of Rayon Yarn and Fiber in 1935 Passed Billion-Pound Mark

The world's production of rayon yarn and staple fiber for 1935 passed the billion-pound mark for the first time in the history of the industry, according to figures compiled by the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

Actual production last year aggregated 1,069,902,000 pounds, a gain of 246,721,000 pounds or 29.9 per cent as compared with a production of 823,181,000 pounds in 1934. Rayon yarn production in 1935 totaled 963,063,000 pounds, an increase of 22 per cent over the 1934 figure of 769,396,000 pounds. Rayon staple fiber output for 1935 was 133,839,000 pounds, an increase of 148 per cent compared with 1934 output of 53,785,000 pounds.

Practically every important producing country contributed to the gain last year. Japan, however, has made a decided imprint on world rayon production. Negligible in 1918, and only two per cent of the world output in 1925, she had increased to 22 per cent by 1935. She became second largest producer in 1934 and has continued emphatically so in 1935. Japan's export business, the *Rayon Organon* points out, is a tremendously important factor in the growth of her domestic rayon industry.

The United States retained its share of about one-fourth of world production in 1935. Germany also has kept her 13 to 14 per cent of the total. Italy has consistently been losing its share of yarn production but its total yarn and fiber output was not far below the 1925 level of 15 per cent. Great Britain has for several years been getting about 11 per cent. France has been losing from one point of view, namely her share on a percentage basis, but she has not lost to any great extent.

The following table shows the total rayon yarn and staple fiber production of the more important producing countries for 1935, 1934, and 1929 as compiled by the *Organon*.

Table Showing Rayon Yarn and Staple Fiber Production

	1935 Pounds	1934 Pounds	1929 Pounds
United States	261,659,000	210,696,000	121,899,000
Japan	237,943,000	157,820,000	27,000,000
Italy	152,000,000	106,900,000	71,000,000
Germany	135,000,000	102,000,000	61,750,000
Great Britain	121,500,000	90,900,000	55,300,000
France	60,800,000	61,600,000	41,800,000
Netherlands	21,150,000	21,900,000	17,600,000
Belgium	14,000,000	12,800,000	16,000,000
Russia	13,200,000	11,900,000	660,000
All Others	52,650,000	46,665,000	31,365,000
World's Total	1,069,902,000	823,181,000	444,374,000

"Profits and Losses in Textiles"

A new book, dealing with current problems in the cotton-textile industry from the viewpoint of the average investor or holder of mill securities, has been published under the title "Profits and Losses in Textiles—Cotton Textile Financing Since the War". The author is Stephen Jay Kennedy, and the publishers are Harper & Brothers, 49 East 33rd St., New York City.

The book presents extensive facts about the present financial situation in the industry, and discusses questions vital to all connected with it, such as: What are the prospects for earnings today? Why do a few cotton mills consistently show a profit while most mills are losing money? What is the industry as a whole doing about it? And what can be done about it?

An especially interesting feature of the book is that several chapters are devoted to a descriptive discussion of the mergers and consolidations that have occurred in the textile industry, giving the financial set-up, and outcome, in each case. All cotton-textile securities issued to the public since 1918 are analyzed, with a discussion of their present status in relation to other textile security issues. The proposed roads to recovery being advanced from various quarters are analyzed as to their economic soundness and also as to what can be expected from them in tangible results.

The book is a fresh, up-to-date, frank and revealing discussion of financing in the cotton-textile industry. The price is $3.50 per copy, and copies may be secured direct from the publishers or through COTTON's book department.

April Hosiery Shipments Above Last Year

The hosiery statistics for April, 1936, presented in the *Statistical Bulletin*, issued by the National Association of Hosiery Manufacturers, show that the volume of demand continues well above a year ago. Generally speaking, production has been kept within bounds and it is not expected that stocks will become burdensome within the next few months.

Total shipments of all types of hosiery during April, 1936, amounted to 10,176,031 dozen pairs, which was almost 11 per cent above shipments in April a year ago. Each of the major branches of the industry contributed to the improved demand this year as compared with last, except in the case of children's and infants' hosiery, where shipments in April, 1936, were about five per cent below shipments in April, 1935. Considering the first four months of the year, shipments in 1936 have exceeded shipments in 1935 for each major branch of the industry with the exception of woolen goods, and in this branch, improved demand in April lifted the total to approximately the same level as last year.

Total production of all types of hosiery in April, 1936, amounted to 10,200,804 dozen pairs. There was a substantial seasonal decline in stocks of anklets in April of this year, which was largely offset by seasonal increases in stocks of ribbed and woolen goods.

Total stocks of all types of hosiery at the end of April, 1936, were 19,186,038 dozen pairs as compared with 19,366,473 dozen pairs one year previous. There was a stock increase of 390,968 dozen pairs in the full-fashioned branch of the industry during the twelve-month period ending with April, 1936. The seamless branches of the industry showed a decline of 571,934 dozen pairs in spite of a rather notable increase in stocks of boys' and infants' socks, children's 5/8-flat and 7/8, and boys' golf hose, and a small gain in the supply of woolen goods on hand. Stocks of anklets and cotton bundle goods in April, 1936, were materially below stocks of one year ago.

THE KNIT GOODS MARKETS . .

Philadelphia, Pa., June 16, 1936.

WHILE the hosiery industry has been seasonally less active, underwear manufacturers have been booking a larger volume of business, especially in late orders for their light-weight lines and at the same time, these producers say that orders for fall goods have been coming in at a very satisfactory rate. The very active runs that manufacturers of anklets have enjoyed during the last few months are approaching their end as the season for these lines passes its peak. Full-fashioned hosiery manufacturers have been very dull, a number of the larger manufacturers in this section closing their plants entirely so far as the knitting departments were concerned, from the middle of May until June 1. Since that time these plants have re-opened but new business has been developing very slowly.

Curtailment of production of men's half-hose has also been substantial in the last month and is expected to continue through the balance of this month and July unless a real pick-up develops in the market. It is difficult to reconcile these reports of a slump in the hosiery sales in the primary market, with the exception of branded lines of women's full-fashioned and certain outstanding items in seamless hosiery, with the continued favorable reports from department stores, chains and jobbers. The belief that hosiery sales are declining at retail, while practically all other departments are showing advances, is not considered accurate. The opposite is indicated by reports of specialty jobbers so that it is felt that the principal difficulty of the full-fashioned section of the market is the large stocks built up by manufacturers early in the year. When their stocks are sufficiently reduced by curtailment now in effect, a turn in the market may be expected. The fact that curtailment was started earlier this year, and has been greater than the ordinary decrease in production at this time, gives reason to expect a turn earlier than usual for the fall season.

Mill stocks have not been out of proportion to the same degree in fancy half-hose as in women's full-fashioned goods, but combined with the sharp increase in imports of low-priced merchandise from Japan, they have been sizable enough to cause an exceptionally dull market which has lasted for several months. Some sellers are inclined to lay most of the blame for the dragging market in half-hose to the Japanese imports. It is pointed out that during the first four months of this year, Japan shipped to the United States 501,951 dozen pairs of hosiery as compared with 120,075 dozen pairs in the first four months of 1935.

Notwithstanding the extreme dullness in the full-fashioned section of the market there are definite indications in the selling market that important buying for fall is close at hand. One report is that one of the largest chain organizations in the country has placed an order with a Reading knitter in excess of 700,000 dozen for deliveries starting in July and running through the fall season. This improvement, if it does develop as expected, will mean also that these buyers believe that raw silk has, or is about to hit its low for the year. Mail order houses, which operate in the future if they are to get out their fall catalogs on time, have displayed a decided interest in the market during the last few days. Buyers are interested in the hosiery price trend, which has been weak, and most of them feel that the bottom will probably be reached late this month and not in July, as was the case last year.

Although knee-length stockings for women have not broken records so far this season locally, some of the larger manufacturers of these lines have been doing an excellent business and report a continued interest in them for quick delivery. Some of the larger hosiery jobbers in Philadelphia were not sold on this type hosiery at the beginning of this season and did not stock up on them, but demands from their customers have caused most of them to put in several lines with most specializing on the full-fashioned type rather than the seamless. Some of the distributors here stated that they did not take to this item earlier because they were dubious, not only of its consumer acceptance, but that the elastic top would prove serviceable. Jobbers admit that they have received very few complaints on this score and the probabilities are they will be more receptive to this type hose next year.

Knee Length Still Good

The knee-length business in the New York market has been largely centered on the seamless silks. Distributors there have not been encouraged to any degree by the full-fashioned knee-length volume booked so far this season. But the seamless silks in the short lengths have moved in a big volume and are still selling actively. The low prices at which the seamless knee-lengths have been obtainable this year has been the main factor in the large volume of them sold. Some good qualities in the seamless have sold as low as $2.25 a dozen, which meant that they could be sold at retail at 35 cents a pair, this figure attracting a large public interest.

Some of the chain stores have been making inquiries regarding manufacturers' plans for opening next season's lines of children's hosiery. These inquiries are looked upon as being early and it is considered doubtful that many manufacturers have figured on showing numbers like children's anklets for some time ahead. This, however, indicates that there is a real interest in this direction on the part of buyers and that the tendency will be for mills to have their lines ready earlier than usual. The re-order business on children's hosiery this spring has been disappointing to many wholesalers in different parts of the country, the original buying for the season being of good volume, and it is felt that these distributors will be well cleaned up by the end of the season. The prolonged late winter first of all held back this business, and then the cold spells from time to time during the spring had its effect on the re-order buying on the part of retailers. The warm weather in most of the sections of the country during the last few weeks has resulted in the movement of a large volume of merchandise of this kind.

Fall Buying Expanding

The fall hosiery buying on the part of wholesalers is reported expanding steadily. Numbers like misses' 5/8s are being bought in good volume. Some large distributors state that their business so far booked of this kind is well up to the average for this time of the year. Prices are reasonable, having reduced in some instances very materially from a year ago. There is still in the minds of some buyers a feeling that unsettled labor conditions may later on bring about lower cost of manufacturing, thereby making possible further price cuts. In consequence they are inclined to make their original commitments moderate, so as to be prepared to take advantage of any price changes of this kind, if they should take place.

From the information so far obtainable in the hosiery market, those manufacturers showing children's anklets for next year are quoting prices about on the same basis as this current season. The manufacturing opinion is that there is nothing in present conditions justifying lower prices on children's goods for the next season. However, with the competition that always goes with this business, it is recognized that the price situation at this early date is not altogether settled. The reports on current business in children's anklets are largely satisfactory, the season showing about the normal demand for these large selling numbers, which is said to be largely for the cheaper goods, such as those retailing for 10 cents a pair.

One of the largest wholesale distributors of hosiery in this city reports that its May volume was almost 30 per cent larger than in the same month last year, adding that every month so far in 1936 shows a nice increase over the same month a year ago. Distributors look for this activity to continue up to July, several stating that month

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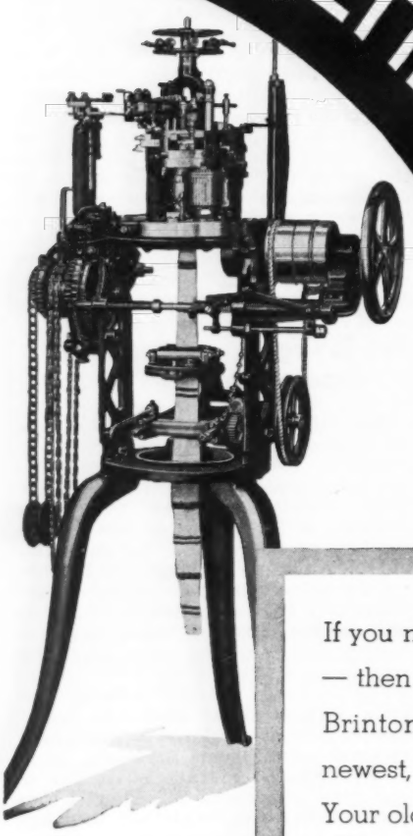

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is always good for children's lines. Jobbers report that bright colors in anklets have been selling best, most being made with cotton and mercerized. They report a small demand for rayon anklets, which are wanted by a specialized trade that wants a silk-appearing article at a low price.

Jobbers' sales of men's half-hose, after a long period of dullness, which lasted almost three months, have expanded nicely this month. Lisle and rayon mixtures have been among the leaders with several wholesalers who say that stripes in such lines are also wanted. They report that sales of elastic-top hose for men are not as large as expected. Most men regard the elastic-top as a novelty and its acceptance here has not been extensive although jobbers say that the demand is gradually broadening.

Hours-and-Wages Agreement

The proposed voluntary agreement covering hours, wages and operating conditions in the women's seamless hosiery industry failed of acceptance by the necessary 85 per cent to make it effective, falling short of acceptance by 19 per cent. 66 per cent of the productive capacity of this branch of the industry was agreeable. Companies which executed the agreement have been released from all obligations under it. The proposal to draw up a voluntary agreement in this section of the industry started several months ago when it was announced that some mills had abandoned former NRA code hours and wages. The agreement submitted to women's seamless mills provided for a 5-day week, 40-hour shifts in the knitting departments, prohibition of operations between midnight and 6:00 A.M. and minimum wages substantially the same as those under the NRA. In commenting on this Earl Constantine, managing director of the National Association of Hosiery Manufacturers, said the fact still remains that the hosiery industry very generally and to a very high degree is maintaining the hours and wages which prevailed under the recent code. He said that it was to be hoped the failure to put the voluntary agreement into effect would not be interpreted either by the industry or by those who purchase its products as a notice or indication that hours and wages were to be radically changed, adding that the industry would make a grievous error of resorting to a free race for longer hours and lower wages. It was stated any such performance would be harmful to workers and management alike, finally resulting in lower prices and larger losses.

A 50-hour week in the women's seamless field, as currently in force among many of the mills, can serve no other end than to increase stocks beyond all possible requirements. It has been estimated that the number of machines now set up in this field can turn out three times as much merchandise as could be consumed in this country. Forty-hour shifts, such as were proposed in the voluntary agreement that was dropped, could fill all needs with plenty to spare. Prices are still subject to fluctuations at a low point, representing next to no profit for manufacturers even on a 50-hour basis.

Report on Curtailment in Full-Fashioned

CURTAILMENT among full-fashioned hosiery plants in Pennsylvania reached a point early in June where the secretary of one of the large associations estimated that the industry was operating at about half-time. While few manufacturers in Philadelphia expect much of a spurt until fall buying gets under way they say in this connection that coverage for the next season may get started earlier than next year. They cite two main reasons for this feeling: That curtailment among manufacturers has prevented the accumulation of excess stocks this dull period and secondly because retail sales of hosiery are holding up well and in many sections showing nice increases over the same period last year. Manufacturers during the present dull period have held prices more firmly than they did last year when volume fell off.

When it appeared that 85 per cent of the seamless industry might sign the voluntary pact to make 40 hours the weekly limit, quotations had become slightly firmer in anticipation of higher labor costs. Now, however, the same situation that confronted these sellers more than two months ago is again at hand.

Buyers report that quotations made to them had not been cut sharply, probably because they were already at low levels. A price of $2.35 a dozen on full-length, 300-needle silks, with hole-in-welt and seam-in-foot feature, has recently been quoted and goods without these features have been available at a lower figure. Some mills are asking $2.75 for merchandise with a hole-in-the-welt and seamed foot. On 280-needle silk stockings buyers reported that they could pick up goods at close to $2.00.

Seamless Crepes

The retail market has been impressed with the recent promotion of a seamless crepe stocking to retail at $1.00 a pair. The goods were 300-needle without a seam up the back and have been featured by outstanding retailers as a revival of the bare-leg stocking of some years ago. The store paid about $6.75 for them and sold approximately 1,500 pairs the first day of the offering, which is an example of what can be done with well-styled seamless stockings with a good promotion idea behind them.

That the market on women's seamless hose will break wide open because of the failure of the voluntary agreement attempt is doubted by many. They point out that a number of mills in this division of the industry are not in too good financial condition and will not deliberately set out to bankrupt themselves. There is not much room for further cost reductions through longer hours and lower wages, and although some adjustments along this line may be seen, they will not be of the importance which has been attached to them in some sections of the market. Some of the more important mills which failed to sign followed that policy because of their belief that the agreement would not work in practice. Their failure to go along does not mean, they say, that there is any intention to stage a raid on the market. They will sell their merchandise at no lower prices than any of their larger competitors, they declare, adding they will not be the first to reduce prices now.

Seriousness of the competition from Japanese cotton hosiery to the domestic industry has been accentuated by the fact that several chain store organizations are selling Japanese-made cotton half-hose in a number of their stores at 8 cents a pair. While most of the larger chains have thus far refused to handle the Japanese imports as a matter of policy, it is reported that some of the larger factors in this field are now giving serious consideration to adding Japanese hose because of the competitive factor involved. It is pointed out that a chain store selling Japanese-made men's half-hose at 8 cents a pair is going to take business away from a rival chain in the same town selling domestic goods at 10 cents a pair. The Japanese manufacturers are not alone underselling the American mills, but are steadily offering improved qualities, which at the lower price ranges cannot be passed up by large chains.

Japanese Competition

Buyers in the market have been surprised at the merchandise such as men's rayon-plated fancies offered to them by large Japanese import houses. Fine gauge, automatic-top fancies of rayon and cotton have been shown and bought as low as 65 cents a dozen, c.i.f. New York. It is stated that domestic manufacturers would be hard-pressed to quote similar merchandise at 77½ cents to 82½ cents a dozen, f.o.b. mill. In both cases the packing is in bundles. Similarly a large-selling fall item, known as men's randoms, an acetate and cotton number, is being shown and sold by Japanese import houses at much lower figures than domestic manufacturers can approach. The number of wholesalers handling Japanese goods is increasing steadily. Import figures on hosiery from that country, as previously pointed out, have been rising remarkably of late and mills in this country making similar goods are feeling this competition most seriously.

Reports reaching this country are that Japanese operators expect to furnish around 4,000,000 dozen pairs of men's half-hose to the American market during this year and first-quarter shipments seem to bear out this prediction. Japanese competition in hosiery was not taken seriously until lately, but now it is receiving attention from a number of southern mills that have been forced to reduce their schedules because, they claim, their business is being affected by these imports.

Ten colors consisting of eight new and two repeated shades are featured in the advance issue of the 1936 fall hosiery color card released by the Textile Color Card Association to its members. These tones are in general of

lighter register than last fall. Because of their continued fashion importance and their success during the last season, burnt ochre and burnt copper are repeated for fall. The 1936 colors are: Burnt ochre, a sun-tone; burnt copper, a glowing copper; leather tan, a rich golden tan; cinnamon brown, a lively spicy brown; cafe clair, a light-brown; a tailleur brown, a brown of metallic cast; debonair, a beige; a new neutral beige; a subdued beige and smoke-tone, a medium gray of taupe cast.

Agreement with Full-Fashioned Union

The selling market as well as all full-fashioned manufacturers are interested in the negotiations which have been opened between the American Federation of Hosiery Workers and the Full-Fashioned Hosiery Manufacturers of America, the union shop group, to arrive at a new national contract for the coming year. The present contract expires August 31 and the rate of wages paid by this group in the past has been adopted by a large number of full-fashioned manufacturers not members of the association. The discussions between representatives of the union and the manufacturer have been in progress during the last few weeks but no decision has been arrived at. It is hoped that an early agreement will be reached on the contract for the coming year as some buyers will withhold placing orders for fall lines until the results of these negotiations are known.

The union claims that discussions to date have been relative to Article E of the present contract, which has to do with factors such as changes in the cost of living, raw materials or competitive conditions during the past year. Some in the trade believe that the union manufacturers are preparing to ask for a change in the present rate schedule and that this movement will be objected to strenuously by the workers' federation. In addition to this disturbing influence, the association of open-shop manufacturers in the Pennsylvania territory has suggested to its members a new method of establishing a weekly wage for knitters based on average production, with extra incentive pay for above-average production. This proposal, which is now being studied by the open-shop group, also includes a provision for the operation of slow-speed, low-gauge machines on the basis of 2 to each knitter with one helper instead of one machine to each knitter, as at present.

Ringless Suit Again Postponed

PHILADELPHIA.—The "ringless hosiery" patent infringement suit of Julius Kayser & Co., and Textile Patents Corp., against Rosedale Knitting Co., of Reading, Pa., in the Federal District Court here has been postponed until September 28. The reason was that one of the principal attorneys could not be present at the earlier date because of other court engagements. A general agreement among the various attorneys was then made for the trial to go over until this new date. Trial was definitely set for last month but it was postponed by Judge Dickinson because of the illness of one of the defense counsel. The postponement leaves the hosiery industry in suspense for a much longer period over the validity of the Charles A. Kaufman patent which has been attacked by Rosedale in both the infringement suit and an action of its own in which it charges the so-called "patent pool" with a violation of the anti-trust laws.

Warm Weather Stimulates Demand for Lightweight Underwear
Manufacturers Also Report Good Interest in Fall Lines

Manufacturers and selling agents have been reporting for the last few weeks that as warmer temperatures were noted in most sections of the country, demand for lightweight underwear improved noticeably. At the same time, there has been a good demand for fall lines of men's underwear but mills depending largely on the sales of women's lines, are still backward. Some business has been placed in the latter but there still remains a large number of wholesalers who have yet to place their orders in items such as snuggies, silk-striped union suits and silk-striped vests and bloomers. Mills making men's numbers, both cotton and wool, are running actively against fall orders on their books and have enough business of this kind to hold them for some weeks ahead. With further business of this kind coming every day and re-orders in sight shortly from those who ordered early, the chances are considered good for mills continuing at a good rate through the fall.

In the fall end of the business an encouraging development was the knowledge that the first commitments of some of the chains on fall underwear were conservative and therefore their actual specifications when received, ran well over the open orders. The gain in volume of this kind to some underwear mills has been large in the last two weeks. The reports from the chains generally that they look upon the fall season as promising and expect to continue to do business at the high rate shown so far this year.

It is expected that the seasonal rush for lightweight underwear will continue for several weeks ahead. Manufacturers and selling agents are convinced that the demand, particularly in men's lightweights, will hold again well into the summer with some good-sized business to be booked even during the fall. This was the case last year and it is expected to be repeated this year. It is known that department stores and chain units are just now doing a good business and they are replenishing stocks.

Those mills making men's flat wool shirts and drawers are in a better position now as to fall business on their books than for several years. One of them with a well-known trademark name reports that its present bookings are considerably over those of a year ago at this time. The excellent clean-up that jobbers and retailers had during the past winter season is held largely accountable for the better advance buying for this fall. Some of the mills similarly making the men's wool ribbed union suits are understood to have booked a better business from wholesale accounts and are confident that later buying on the part of this trade will average up favorably. If orders from the Government should become available in the near future, the production situation of such mills would be very satisfactory.

From reports heard in the market, competition in some parts of the country among jobbers of men's wool underwear, has been about as fierce and destructive to profits as in the men's cotton ribbed union suits. In the Northwest, for example, where most of this wool underwear is sold, it is said that jobbers have been offering well-known wool numbers at prices little above the cost prices of manufacturers. The latter, and their selling agents, find it difficult to understand price-cutting of this type.

Substantial re-orders continue to arrive daily in polo shirts from all parts of the country. Wholesalers and manufacturers as a result of this, are predicting that the season is going to run for a number of weeks to come. A number of buyers looked for the demands to end by July 4, but most in the market feel that the popular knit sport shirt is going to last well into August. For another year there is less and less doubt about the polos continuing in popularity. The opinion of most in the market is that the polo shirt is here permanently and for a larger part of the public than formerly. It may not be the sensational item it was two years ago, but distributors say that good volume will continue. Indications are just as many manufacturers will continue in this line and probably a few more. The present demand for polos is definitely pointing towards the newer fancies, the plain merchandise having apparently gone by for this year.

Distributors have also found in connection with polos that they do not have to be dirt cheap to sell. Those mills making quality merchandise at a reasonable price are doing better just now than those trying to see how cheaply they can make them. Current reports are also to the effect that rayon polos have gained in popularity as the season grew, some mills on these lines being extremely busy and operating over-time schedules at present. Information from up-State trade is that the polo shirt demand is the main factor in keeping a number of the underwear mills there busy. While the women's lightweight underwear business is fairly steady in that section, it certainly is not increasing and not large enough to give full production to the large amount of machinery in this state.

Fall buying of outerwear has been small to date, most large buyers postponing commitments, fearing a reduction in wool and yarn prices.

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REVIEW OF THE YARN MARKETS

Cotton Yarns Firmer After Long Decline with Demand Showing Improvement

Philadelphia, Pa., June 16, 1936. AFTER weakness during most of the year to date cotton yarn prices early this month hit their lowest points and since then some advances have been recorded. This in turn has had the effect of bringing a fair number of manufacturers who had been "on the fence" into the market for their requirements over the next two months. At the same time most spinners have raised their ideas ½ cent and some a full cent from the extreme lows of early June.

Improvement in demand will see spinners try to widen their spinning margins because these have practically disappeared in recent months. Since late last year there has been no real buying spurt in carded yarns and during most of this period spinners have cut prices to stimulate business on which to run and keep their help employed. This has been unprofitable and at present many carded counts are selling for considerably less than replacement costs.

Compared with a month back spot cotton shows an advance of seven points but cotton yarn prices, notwithstanding the recent hardening, are lower than at the middle of May although the differences are not large.

A month ago 10s carded cones were held at 22 cents and at present most spinners are asking the same but until a couple of weeks ago it was possible for knitters to buy these spinnings at 21 cents as the low, although most refused to accept less than 21½ to 22 cents. Weaving numbers also show little change at present from a month ago but are up ½-cent or more from the early June lows. It is reported that large sales of 20s two-ply warps were closed at 24 cents to 24½ cents then but at present spinners refuse less than 25½ cents and some are higher.

As soon as spinners book a few new orders they advance their prices rapidly to the new level, indicating that only a limited amount of business could be placed at the lowest levels. Combed qualities show little change in price over the last month with single on the basis of 34 cents now and also a month ago. During the interval some large orders were placed at 33 cents as underwear makers are using this yarn in large amounts, many that formerly used carded turning to it. The difference between carded and combed knitting is small and favors combed increased consumption.

Mercerizers report a slightly larger demand for their yarn than during the year to date in 1935, although some of the larger units in this trade have stated that their poundage shows an increase of approximately 15 per cent but this does not hold true with several others and the over-all figures indicate little change for the first five months of this year as compared with 1935. Prices of mercerized yarns have not changed during the month, being held at 64 cents for 60s two-ply but in this connection producers report that it is much easier to sell at this list price than a month ago.

Worsted Yarn Prices Harden in Sympathy with Wool.

After a period of weakness worsted yarn prices have strengthened during the last month and at present some counts, especially weaving, are now selling at prices 5 to 7½ cents higher than the lows touched late in May. There was a considerable volume of business placed by both weavers and knitters during the short interval in which these extremely low prices were noted. Men's wear manufacturers placed initial orders for the 1937 lightweight season but spinners say that manufacturers covered only enough for their early orders in these lines.

At the same time a large amount of knitting yarn business was booked at the low figures, by which is meant $1.10 for 2-20s, 50s and around $1.10 for 1-18s, dyed, low quarter blood. In connection with this business, it is reported in the trade that certain spinners made concessions in regard to the unfinished old contracts on their books, on which manufacturers had not been specifying due to the decline in prices from the level at which these old orders had been placed. Knitters report that a certain number of spinners agreed to cancel these contracts if the knitter would contract for double the quantity of this undelivered balance at the $1.10 price.

Men's wear manufacturers are actively engaged at present on late heavyweight orders and spinners of mixtures are making large deliveries but they expect no new specifications of importance on yarns for the present season. Next month, these weavers will begin giving mixture yarn producers specifications for the initial lightweight yarn orders on which weavers will begin operations late in August. Indications are that the new season will develop early and that most spinners catering to this trade will have active runs during the early fall at least and at the same time optimistic reports are coming from manufacturers of dress goods and cloakings, so that weaving yarn producers are predicting more active operations during the latter half of the year than were seen during the first half of the year.

Manufacturers of men's and boys' sweaters have not been covering for their fall goods to any important degree except in a small number of instances where orders for cheaper lines sold through the chain stores have been placed. Sweater manufacturers selling to the jobbing and retail trades have booked comparatively little for the coming season and their yarn commitments are being held in abeyance until these develop. Knitters of bathing suits are finishing a very active season but one which has not been so favorable from the profit standpoint. These lines were priced months back on the basis of cheap yarns which have not since been duplicated, which has had the tendency of increasing knitters' costs while at the same time they report being unable to secure any advances in their goods.

Rayon Yarn Sales Hit New Peak. Fall Orders Being Booked

Sales of rayon yarns during May were as large as the best previous month of this year so far as certain large producers are concerned and in some instances new records for any month in the history of this business were broken that month. Indications are shipments during June will be at least as large as May with several producers predicting that they will set another high mark. Although at the time of writing no change in the price level had been announced, there are persistent rumors in the trade that an advance of 3 cents a pound in certain deniers will be made in the very near future. Some of the heavy buying of recent weeks may be attributed to this feeling on the part of manufacturers but yarn sellers assert that the great bulk of yarn now being delivered is going right into consumption.

Weavers of dress goods have been enjoying an active season so far as a limited number of the larger establishments are concerned but the average sized plant up-State has been complaining not only of lack of volume but more important the impossibility of selling at a profit. Pennsylvania weavers say that they are unable to compete with large mill groups in other sections of the country which they explain have lower labor charges and keep overhead low by operating on a three-shift basis.

Silk Inclined to Weaken and Demand Quiet

Although showing a steadier tone during the last week, prices of silk yarns have been soft and manufacturers have been covering only their immediate needs. Sales to the full-fashioned trade have been especially small as most of these mills in this section are operating on about half time schedules. Weavers are taking on little because of the inroads being made on their business by rayon fabrics at this time.

Textile Exposition Folder

The officers and directors of the Textile Hall Corporation have sent a folder to more than a thousand southern and New England textile plants telling the progress of and plans for the Twelfth Southern Textile Exposition to be held in Greenville, S. C., April 5 to 10 inclusive, 1937. It explains that the exhibition will be primarily for executives, department heads, and skilled workers in cotton, rayon, silk, and wool factories, and in dyeing, bleaching and finishing plants. However, all persons interested in the textile trade are invited to attend.

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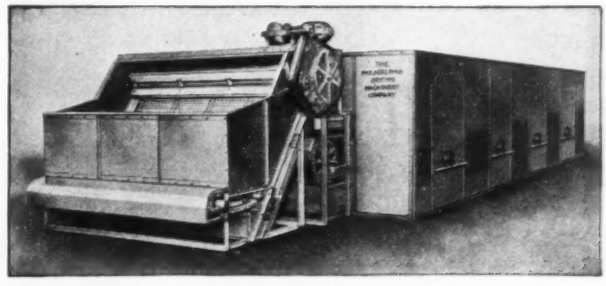

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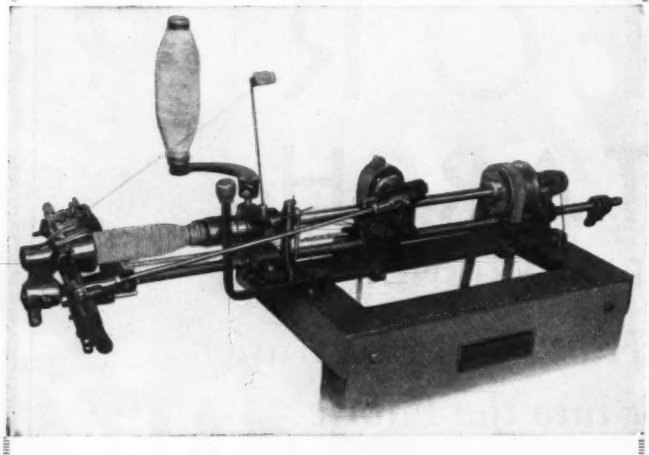

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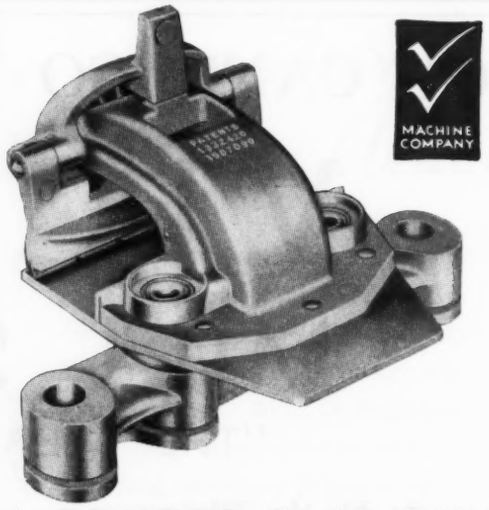

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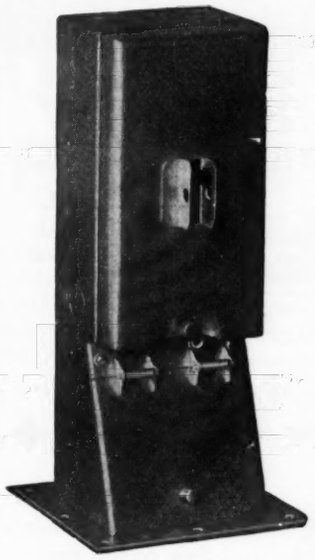

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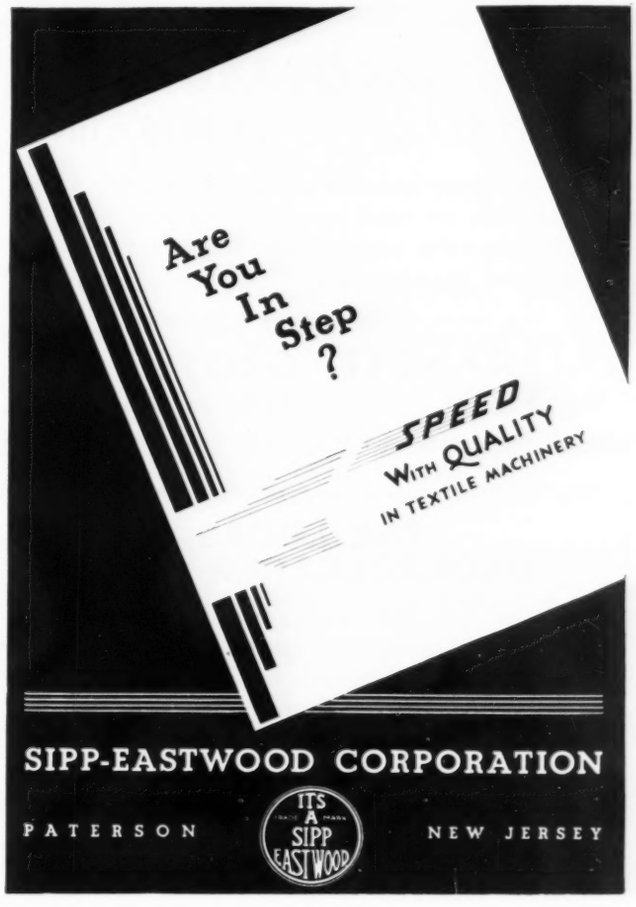

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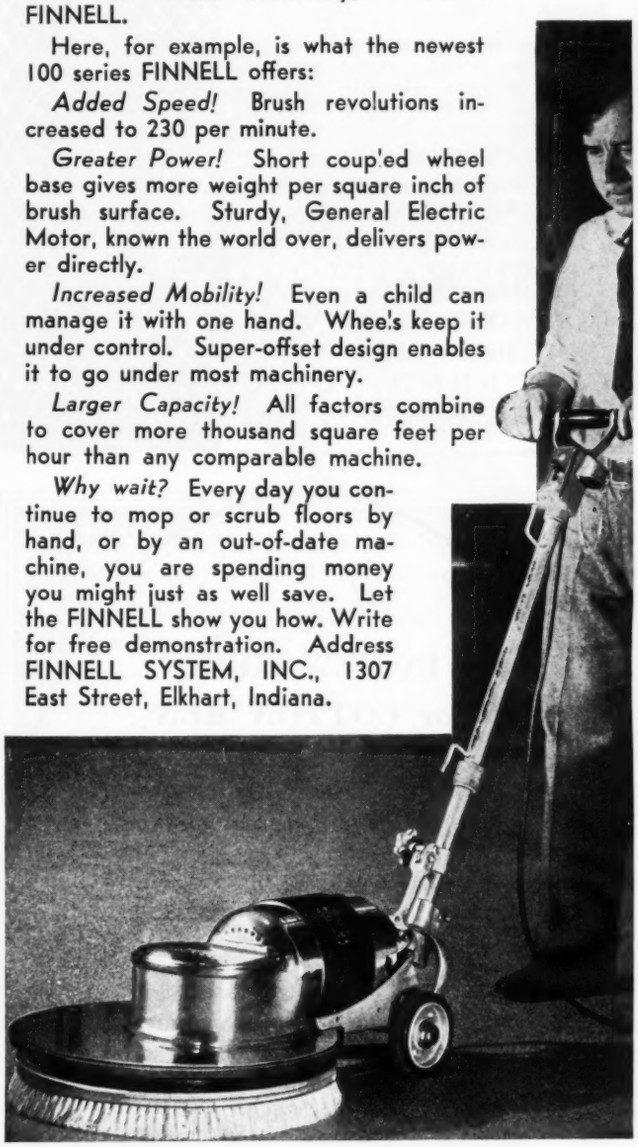

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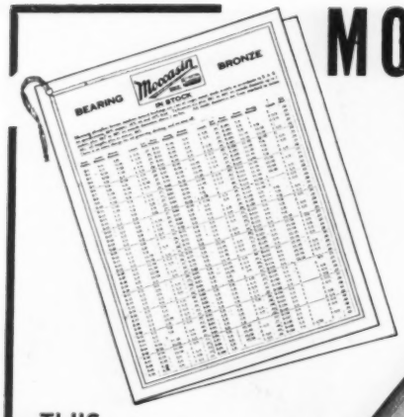

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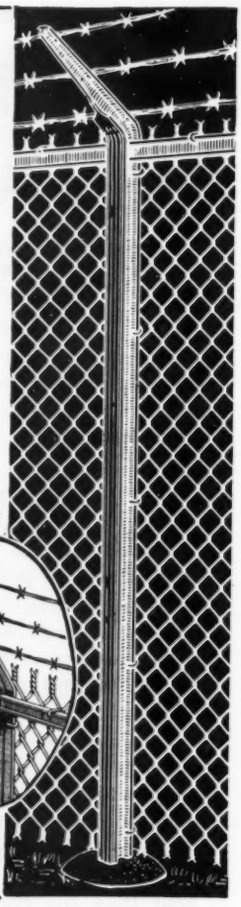

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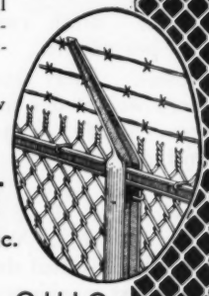
Stewart Non-Climbable Chain Link Wire Fence, with beam construction throughout, is the heaviest and strongest Chain Link Wire Fence on the market. Before you buy investigate the many outstanding advantages found only in Stewart Fences.

Send for fully illustrated catalog or see the Stewart representative in your vicinity. He will gladly give complete detailed information. No obligation, of course.



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IRON WORKS CO., Inc.
315 Stewart Block,
CINCINNATI, OHIO
1886 - Golden Anniversary - 1936

AN UP-TO-DATE PRINTING PLANT

equipped with modern machinery and a staff of competent workmen, solicits, thru this publication, a trial order on your printing needs.

We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

The A. J. Showalter Co.
PRINTERS AND PUBLISHERS
DALTON GEORGIA

A Meeting Place
IN NEW YORK for COTTON MEN

Executives of your industry have favored The Vanderbilt for years... here you will always find men you know...or wish to know. It is convenient for your business requirements . . . ideal for entertaining.

Spacious rooms with bath from
$3.50 single .... $5 double

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The **VANDERBILT HOTEL**

Where Park Avenue Begins . . . at 34th Street
NEW YORK

Do you have WINDOWS on your MIND?

Open windows in spinning and weaving rooms rob mills of a lot of money. For they lower humidity, cause spotty conditions. And spotty conditions cause ends down, lost production, high costs, *lost profits.*

Get windows off your mind—and put more money in your pocket with a Parks Automatic Airchanger. This equipment produces the uniform air conditions of a central station system, without its cost. By a patented feature it ties in the humidifiers with an automatically controlled air change and provides maximum ventilation with constant humidity, uniformly distributed. It helps you to easily maintain production up to highest standards of quality and quantity — both summer and winter. And it vastly improves working conditions.

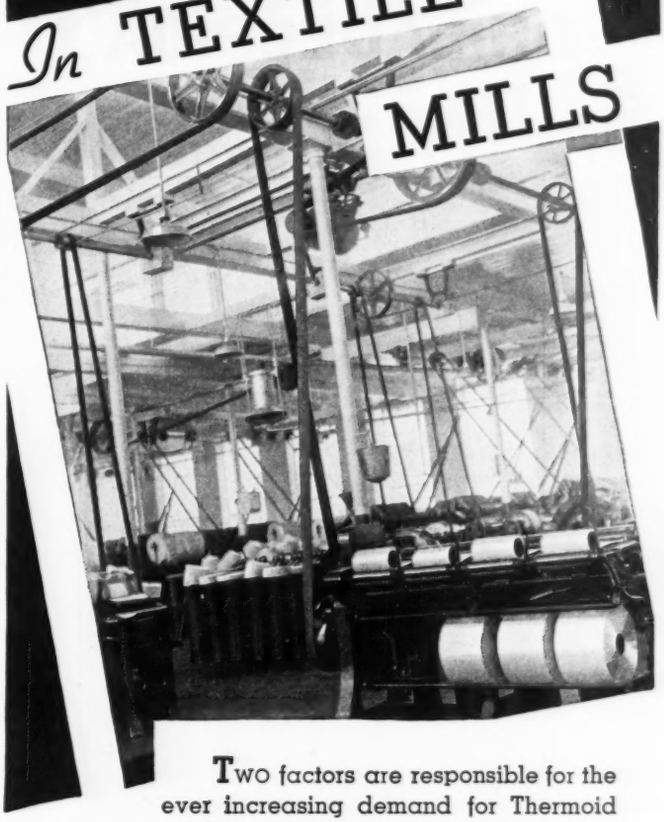
The Parks Automatic Airchanger is designed to utilize and supplement your present humidifier system. It is an *investment*—that is soon returned in savings. Write for booklet 235—which gives complete details.

PARKS *Certified* CLIMATE

PARKS-CRAMER CO. Fitchburg, Mass.: Charlotte, N.C.

2726

In TEXTILE MILLS



Two factors are responsible for the ever increasing demand for Thermoid products in textile mills. (1) Their perfect adaptability to the service requirements in this field. (2) The savings in maintenance costs which result from their consistently superior performance.

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CONVEYOR BELTING · PLYTEX
HIGH SPEED TRANSMISSION BELTING

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A SYMBOL

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PHILADELPHIA

OF HOSPITALITY

When you visit Philadelphia make **HOTEL PHILADELPHIAN** your home . . . You will find its location convenient—ten minutes to the business section . . . away from congestion and noise. . . . Known the world over for its hospitality . . . food that satisfies.

600 ROOMS, Each With Bath
From $2.50 Single, $4.00 Double

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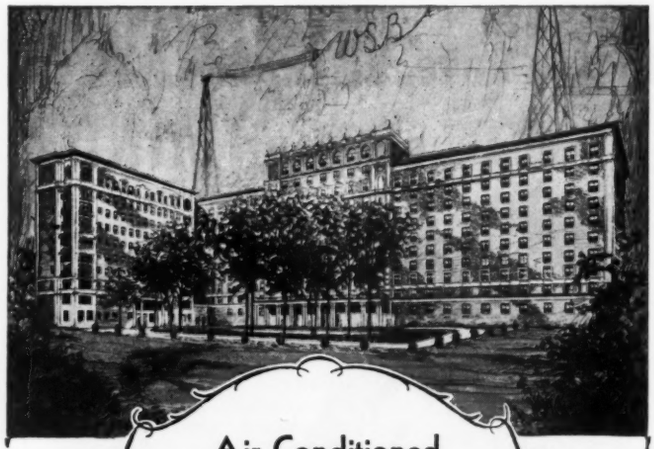
(Formerly Hotel Pennsylvania)

39th and CHESTNUT STREETS
PHILADELPHIA



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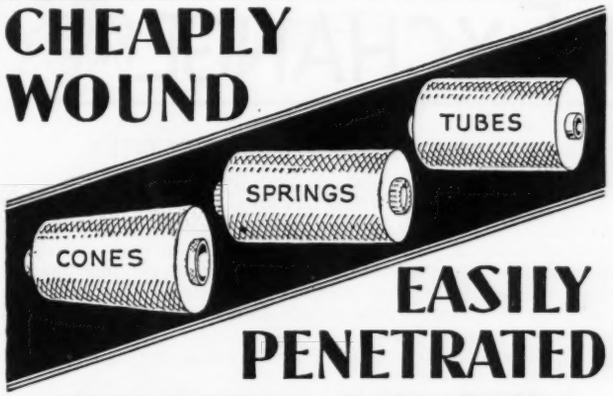

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Specifications for all types of

DYE PACKAGES

There's a reason!

Get it from

ABBOTT MACHINE CO.

WILTON, N. H.

UNIVERSAL

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BEST MEET THE SPECIFIC REQUIREMENTS FOR SPINNING AND TWISTING

THE BOWEN PATENTED BEVEL EDGE TRAVELER VERTICAL OFFSET TRAVELER FOR EVEN SPINNING AND TWISTING

VERTICAL NE-BOW TRAVELER FOR SILK, RAYON AND FINE WORSTED YARNS. A TRAVELER THAT WILL NOT UNTHREAD. ESPECIALLY DESIGNED FOR LUBRICATING RINGS.

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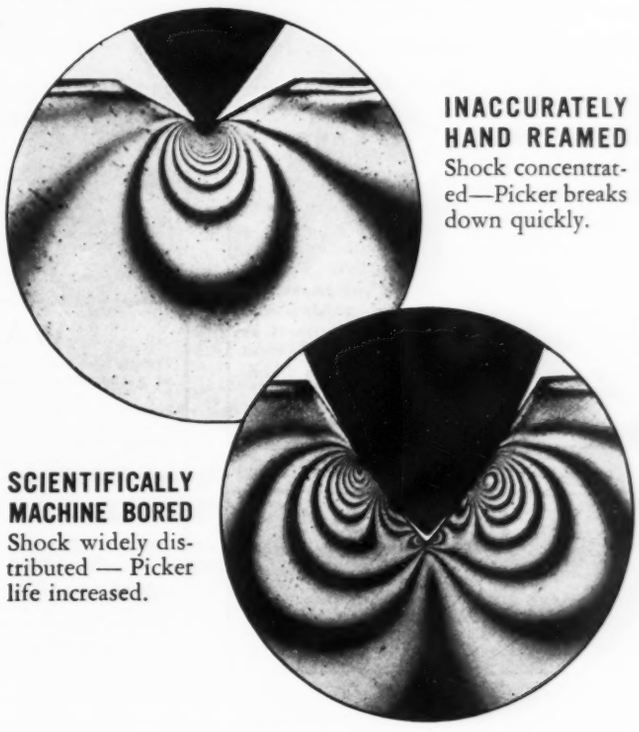
PHOTO-ELASTIC PICTURES

SHOW HOW SCIENTIFICALLY DESIGNED SHUTTLE HOLE CUTS YOUR PICKER BILL . . .



INACCURATELY HAND REAMED
Shock concentrated—Picker breaks down quickly.

SCIENTIFICALLY MACHINE BORED
Shock widely distributed — Picker life increased.

In the laboratories of one of the world's finest scientific institutions, comparisons of stress distribution in various pickers showed that **THE PICKER WITH THE LIFE SAVER HOLE LASTS LONGER.** Only the Graton & Knight 50 Type Picker has the hole accurately pre-cut to fit the shuttle. It's a patented feature no hand-cutting can match and it cuts your picker costs in half. Some reports show the 50 Type Picker out-lives others more than 2 to 1.

Call Western Union for the name of the nearest Graton & Knight distributor. (No charge for this service.)

50 TYPE PICKER

THE PICKER WITH THE LIFE SAVER HOLE

GRATON & KNIGHT CO., WORCESTER, MASS.

2184

TRADING POST EXCHANGE

BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

DISPLAY RATES

Rates are net, payable in advance each month. No commission or discounts. Page is 3 columns, 10 inches deep—30 inches to page. Space measured by even inch vertically by 1, 2 or 3 columns in width. Column width 2¼ inches. Rates based on the total space used in one year.

	Per Inch		Per Inch
1 inch	$5.00	15 inches	$4.20
3 inches	4.80	20 inches	4.00
6 inches	4.60	50 inches	3.80
10 inches	4.40	100 inches	3.00

UNDISPLAYED

Advertisements set "Want ad" style. Positions wanted .05 word per insertion. Minimum charge $1.00 per insertion. Cash with order. All other classifications .10 word per insertion. Minimum charge $2.00 per insertion. Advertisements of equipment, for sale, rent or wanted and professional cards are accepted at display rate only.

Box number address care of COTTON, Grant Bldg., Atlanta, Ga., count as eight words.

POSITION WANTED

Have had over 20 years experience in two hosiery mills and can furnish excellent references from both. Familiar with all types knitting equipment, have working knowledge of silk throwing equipment and capable of handling winders, twisters and coners. Would like to find employment as knitting supervisor or assistant. Address Box No. 402, care COTTON, Grant Bldg., Atlanta, Ga.

POSITION WANTED

Young man, 26, payroll and general office experiance with large textile firm, equipped with business training, knowledge of accounting. Employed at present with large bank. Nominal salary with chance of advancement. Address Box 403, c/o COTTON, Grant Bldg., Atlanta, Ga.

Paul B. Eaton

PATENT ATTORNEY

1408 Johnston Bldg., Charlotte, N. C.

514 Munsey Bldg., Washington, D. C.
Former Member Examining Corps
U. S. Patent Office

WANTED

Textile graduate not over 28 years of age as assistant designer in fancy dobby weaving mill in the South. Practical designing experience not necessary if willing to learn. Give age, experience, married or single, and salary expected. Address Box 400, care COTTON, Grant Bldg., Atlanta, Ga.

POSITION OPEN

The Brooks Oil Company desires experienced salesmen to cover two established territories selling improved boiler metal treatment, industrial paints, roofing material and other products. Only well qualified and recommended need apply. Must have car. Drawing account and high commission. State full experience and references. Address Brooks Oil Co., Cleveland, Ohio.

WE PAY CASH!

For Surplus or Odd Lots of Yarn
Rayon, Spun Silk, Raw Silk
Wool—Worsted—Cotton
(Any form dyed or Undyed)
QUANTITY NO OBJECT
J. C. YARN CO.,
109-111 Spring St., New York, N. Y.

WANTED:

By reputable concern, Specialty Salesman and demonstrator or established Manufacturer's Agent to handle new type concentrated tinting blue and possibly excellent line of textile scouring, dyeing, bleaching agents later. Brokerage or Commission Basis. North and South territories. Address Box 398, care COTTON, Grant Bldg., Atlanta, Ga.

POSITION WANTED

A Philadelphia Textile School graduate, 27 years of age. Four years' experience as superintendent and manager of a large Southern Combed Cotton Spinning mill, one year on cotton yarns with U. S. Government and one-half year selling experience. Desirous to locate in any capacity with a progressive textile organization. Available on short notice. Address Box 399, c/o COTTON, 1020 Grant Bldg., Atlanta, Ga.

POSITION WANTED

Middle aged man with over 20 years textile experience would like position as cotton mill manager, superintendent, or assistant. Active, energetic and honest. Ideas regarding compensation very moderate. Can give references or make bond. Will go anywhere. Address Box 401, care COTTON, Grant Bldg., Atlanta, Ga.

"COTTON MILL MACHINERY CALCULATIONS"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on the subject obtainable. The two volumes are illustrated with 45 diagrams and contain 21 reference tables. Strong, serviceable binding. You can secure them in conjunction with a three-year subscription to COTTON.

DO YOU WANT TO SELL IT?

Probably you, like many other mills, have some equipment which you have taken out or are thinking of taking out and replacing with new equipment.

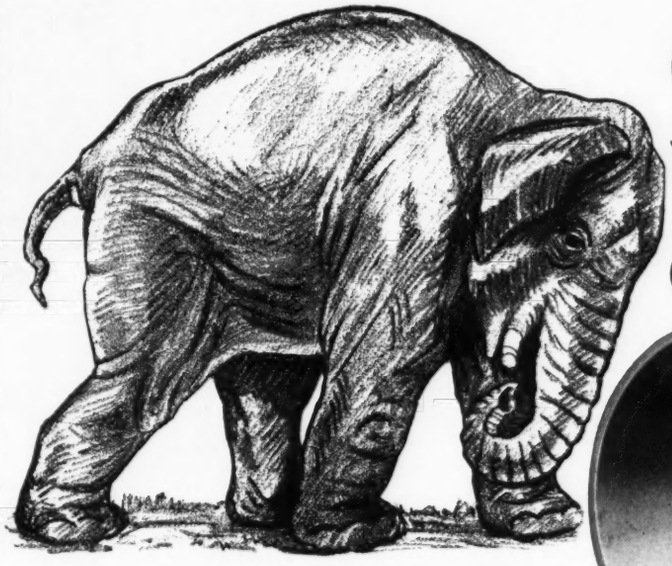
Why not dispose of that second-hand machinery at a profit? COTTON has the largest circulation among the textile mills of the United States of any textile publication.

You Can Sell Your Second-Hand Equipment

to these mills through advertising in the "Trading Post Exchange" of COTTON. Such advertising produces results at small cost—why not try it out and get that second-hand equipment off your hands in a profitable way? Tell us what you have for sale and let us insert an advertisement.

COTTON

GRANT BLDG. ATLANTA, GA.



GOLDENS' WEB CENTER Cast Iron Motor Pulleys

For the EXTRA HEAVY Jobs

THE greater strength and simplicity you see in every line of GOLDENS' Web Center Cast Iron Pulleys means a longer trouble-proof life under severe conditions of service. They are the result of over 50 years manufacturing experience and are ideally suited for motors, saw mandrels, tighteners and other high-speed, heavy duty applications. They are classified as follows:

STANDARD—bored, keyseated or set-screwed and ***turned all over,*** thus securing the best possible balance.

SEMI-FINISHED—bored, keyseated or set-screwed and ***turned on outside and inside of rim,*** but not on web or hub.

ROUGH-FINISHED—bored, keyseated or set-screwed and ***turned on outside of rim*** only.

GOLDENS' have furnished more complete and partial pulley and shafting equipment to cotton mills than any other manufacturer in the United States. Write today for prices.

GOLDENS' FOUNDRY & MACHINE COMPANY, COLUMBUS, GEORGIA

Here is a tool that is particularly useful in the Textile field, for it possesses rugged strength and tremendous power to move heavy loads—up to 6 tons — yet it can be carried easily from job to job.

To PULL and LIFT where space is limited!

PUL-LIFT

The Tool of 1,000 Uses

. . . it operates in either horizontal or vertical position and its uses are virtually unlimited. Made by YALE, it possesses the fine characteristics of all YALE Products.

Capacities ¾, 1½, 3 and 6 Tons

-YALE-

THE YALE & TOWNE MFG. CO.

Dept. C-5., PHILADELPHIA DIVISION, Philadelphia, Pa.

Makers of Yale Hand and Electric Chain Hoists, Trolleys, Electric Trucks, Hand Lift Trucks and Skid Platforms.

Nickel-clad or Stainless Vessels

¶ Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

TANKS, TOWERS, BOILERS, KIERS, KETTLES STAND PIPES, SMOKE STACKS, AIR RECEIVERS, Etc.

Write for "Tank Talk"—No. 1-C

R.D.COLE MANUFACTURING CO.

NEWNAN *EST. 1854* GEORGIA

FABRICATORS OF STEEL AND ALLOY STEEL PLATE

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CONSISTENCY

Reader interest in COTTON is evidenced by the fact that the circulation curve for the past six years shows no jagged edges nor sharp turns. The circulation has increased consistently from 8,288 in 1930 to 9,035 in 1936.

COTTON HAS THE LARGEST PAID CIRCULATION AMONG THE TEXTILE MILLS OF THE UNITED STATES OF ANY TEXTILE MAGAZINE

COTTON

Serving the Textile Industries

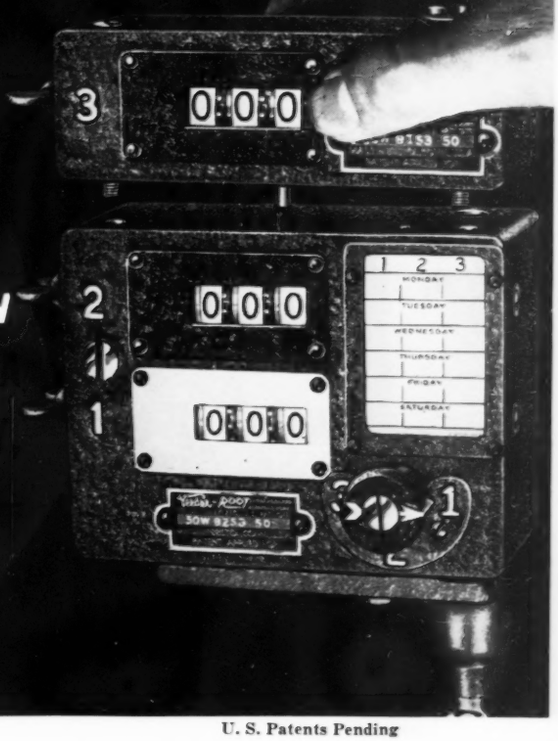
2-3

Protects you against Obsolescence

Today

THE BEST 2 SHIFT PICK COUNTER YOU CAN BUY

Tomorrow



U. S. Patents Pending

AGAIN Veeder-Root steps out ahead in pick counter development—with this new 2-3 resetting counter that is really two counters in one. Here is the finest device you can buy for 2-shift operation.

For 3 shifts, if and when you need them, you simply buy one extra counting unit, secure it quickly in place with 3 screws. You get a 3-shift counter for very little more than you would have paid if you had installed it as original equipment. *And you protect yourself against obsolescence by retaining full use of your original 2-shift pick counter!*

The new 2-3 pick counter is another example of Veeder-Root's ability to design counters exactly to the needs of the industry—another result of continuous engineering effort to prevent premature obsolescence of Veeder-Root counters.

See how this new counter works. How easily it can be converted from 2-shift to 3-shift operation. How much money it can save you. Arrange for a demonstration—write the nearest Veeder-Root office today.

VEEDER-ROOT, *Inc.*

HARTFORD, CONN. • BOSTON • PHILADELPHIA • MONTREAL • LONDON • **GREENVILLE, S. C.**

BUILDERS OF COUNTING DEVICES SINCE 1878

FINER TEXTURES *Faster Selling!*

Hands reach across the counter • where eyes discover fabric fashions of the day! ● Hands also prove the merit of the FINISH. It becomes a point of selling or discard. The FINISH must be RIGHT! ● PROVEN MERIT comes with VELV-O-RAY • the All-purpose Oil • for the dyehouse and finishing room.

VELV-O-RAY
REG. U. S. PAT. OFF.

ROYCE
CHEMICAL COMPANY
Chemical Manufacturers
CARLTON HILL • NEW JERSEY

● Naturally harsh fibres are given a silky softness in the dye bath. Tin weighted silks, acetates and all synthetics lose their brittleness under VELV-O-RAY treatments. Cottons and their varied mixtures respond to its unusual qualities of penetration and levelling. It leaves no stickiness • no rancid odor. ● For "extra body" • a deep, mellow texture • FINISH that quickens trade •

VELV-O-RAY
LEADS THE FIELD !